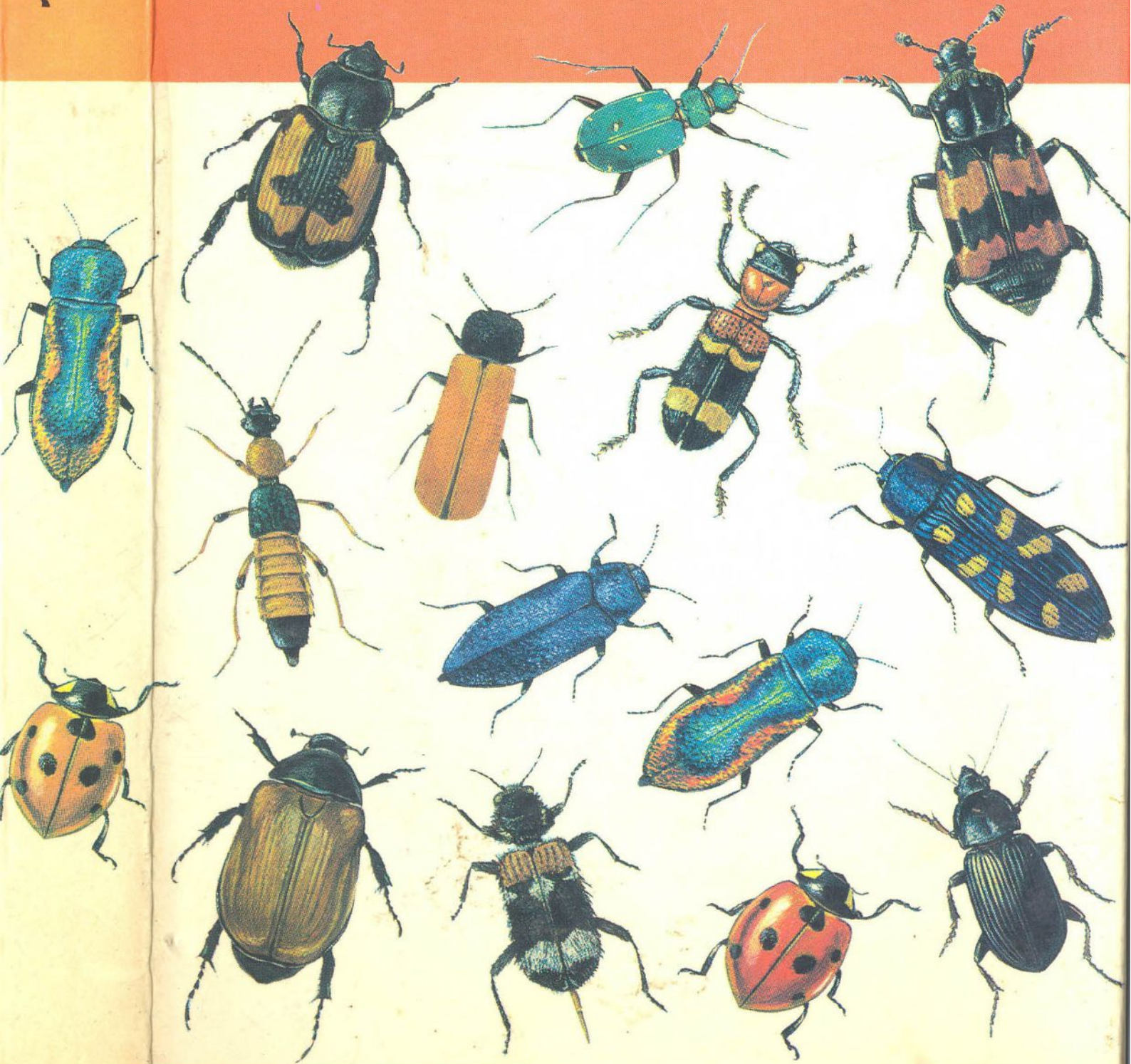


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BEETLES
in Colour

LEIF LYNEBORG

Illustrations by Niels Jønsson

English edition supervised by
Gwynne Vever

BLANDFORD PRESS
Poole Dorset

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PREFACE

This volume is one of a series of identification handbooks, each with full colour illustrations, which deal with the natural history of Britain and Europe.

The book was planned and written by Leif Lyneborg in collaboration with the artist Niels Jønsson, while Dr Karel Hurka and Dr M. Chvála acted as consultants. This Edition was supervised by Dr Gwynne Ververs of the Zoological Society of London. Geographically, the book covers Europe west of a line drawn from the southern tip of Sweden to the Adriatic Sea, but also including Sweden and Finland. There are two main sections: the colour plates, and the descriptive text.

Of the forty-eight colour plates, the first forty-four illustrate a selection of the beetles that occur in the geographical area concerned, while the remaining four plates show some of their larvae. It must be emphasized that this is a selection, for it covers less than 5 per cent of the species recorded from the area. Naturally, families with large, striking species are somewhat better represented than others. However, the species chosen show the wealth of the beetle fauna in the area. Unfortunately, it has not been possible to illustrate each beetle on the same scale.

In addition to a short introduction, the text comprises detailed descriptions of the species illustrated and also short notes on the many families covered by this book.

Each specific description starts with a section entitled 'Characteristics'. This gives the most important features that should help in identifying the species and can be used in conjunction with the colour plates. It also gives the total length (L.) of the species, excluding the antennae.

The section entitled 'Distribution' is intended to give some idea of the geographical range of the species. It should be noted that the total distribution of some species may be very large, and that many occur only sporadically or locally within this range.

The term 'Habitat' covers the type of country in which the species lives, and this is followed by notes on its 'Habits'.

INTRODUCTION

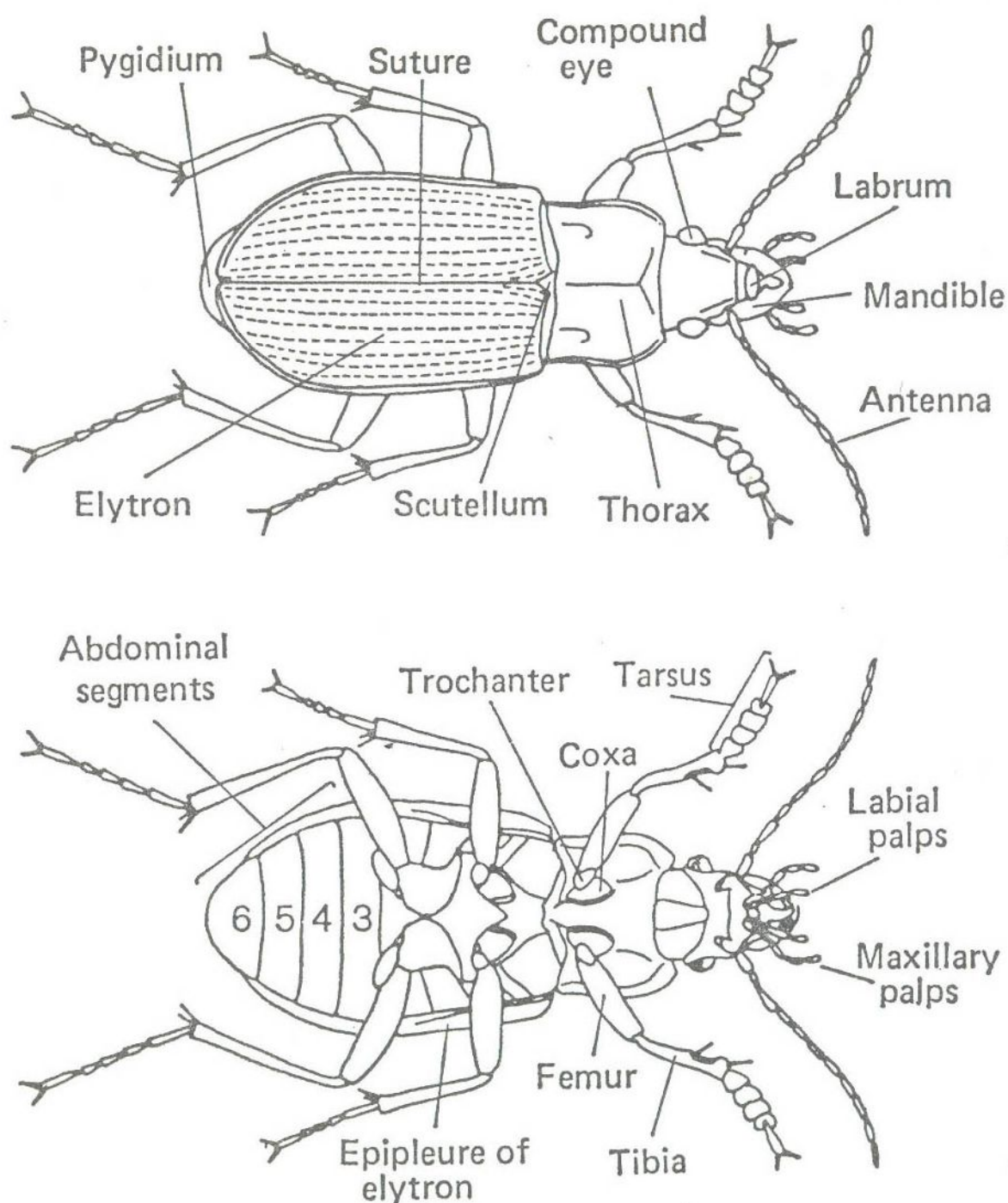
The beetles, or Coleoptera, form one of the four largest insect orders. The others are the Lepidoptera (butterflies and moths)*, the Hymenoptera (ants, bees and wasps) and the Diptera (flies and mosquitoes).

The Structure of Beetles

As in all insects, the body of a beetle consists of three parts: head, thorax and abdomen. The head carries two large compound eyes, and in a few forms one or two ocelli or simple eyes. It also carries the two conspicuous antennae, usually with eleven segments, which vary considerably in form. The mouthparts are normally powerful and adapted for biting. Between the labrum (upper lip) and the labium (lower lip) there are a pair of mandibles and a pair of maxillae. The latter consist of a number of elements and they also carry the maxillary palps, which usually have four joints. The labium also has a pair of palps, known as labial palps, which in most species have three joints.

The thorax always consists of three parts; the prothorax, mesothorax and metathorax. The prothorax is seen from above as a large plate forming the middle part of the body between the head and the elytra that cover the abdomen. On its underside, the prothorax carries the first pair of legs. The mesothorax is firmly fused with the metathorax, and it carries the first pair of wings and the middle (or second) pair of legs. This pair of wings is modified to form a pair of hard, sclerotized structures known as elytra (*singular*: elytron). The elytra often show small depressions, known collectively as puncturation. The elytra meet along the midline of the body to form the suture and their arched outer edges are known as epipleures. At the front of the suture there is

* *Butterflies in Colour*, Blandford Press Ltd., 1975. *Moths in Colour*, Blandford Press, Ltd., 1976.



often a small shield, the scutellum, which is part of the mesothorax. The elytra may be foreshortened as, for example, in the family Staphylinidae, or may be completely absent, as in the female of *Lampyris noctiluca* (Glow-worm). The second pair of wings (used in flying) is attached to the metathorax. These wings are translucent and when in the resting position are folded longitudinally and usually also transversely beneath the elytra. In some species these wings are much reduced or completely lacking,

and naturally such beetles cannot fly. The venation of the wings provides characters which are of great value in understanding the relationships of the different beetle groups, but this is not a subject which can be discussed here.

There is one pair of legs on each of the three thoracic segments. Each leg consists of segments known as the coxa, trochanter, femur, tibia and tarsus, the latter usually with a pair of terminal claws. The legs are very variable in form, depending upon whether they are adapted for swimming, digging, running, climbing, jumping and so on.

The abdomen consists of a maximum of eight segments (usually seven). Each segment is formed of a dorsal plate or tergite and a ventral plate or sternite. Normally, the abdomen is covered completely by the elytra, but sometimes the rearmost segment or pygidium is uncovered. In the staphylinid beetles and some others a large part of the abdomen is uncovered, and the tergites of the uncovered segments are then much hardened (sclerotized).

The colours of beetles are due to the presence of various pigments which are deposited in the cuticle. The iridescence of many species is due to the presence of a special structure in the cuticle. In some beetles, including the weevils, the colour patterns are produced by variously coloured scales, which are really modified hairs.

Developmental Stages

Beetles belong among those insects which have complete metamorphosis. This means that the egg hatches into a larvae which is quite different from the fully developed adult or imago (*plural: imagines*). There is a resting stage, the pupa, between the larva and the imago.

The larvae of beetles show considerable variation in form. As in the adults the body consists of three parts: head, thorax and abdomen. The head is well developed and nearly always much sclerotized. It has up to six simple eyes (ocelli) and a pair of antennae, each with three or four joints. The mouthparts are adapted for biting.

The thoracic segments are more uniform than in the imago, although in predatory larvae the prothorax is more powerfully developed and more sclerotized. Each thoracic segment carries a pair of legs. Reduction of the legs occurs quite frequently, and the larvae of weevils and bark beetles have no legs.

The larval abdomen consists of ten segments, of which one or more may be modified in various ways. In some species one of the rear segments may carry on its upperside a pair of 'feelers' or cerci, and in many larvae the last abdominal segment is turned down to act as a 'leg' or pseudopod. In many aquatic beetle larvae the abdominal segments carry gills of various types.

In order to grow larger, the larva has to moult at intervals, and this usually happens three to four times during the larval stage, and the larva then pupates. After a variable period the adult beetle or imago emerges from the pupa. This often takes place late in the year, before winter, and the imago may remain in the pupal chamber before emerging in the following spring.

Habits

Beetles occur in an extremely wide variety of biotopes. The majority are terrestrial, living in woodland, fields and meadows, or in true deserts, and some even in underground caves. Such cave forms are often colourless, blind, and have long antennae, palps and legs. Some beetles live in fresh water, others in the transition zone between land and water. There are also beetles in brackish waters, but not in the sea itself.

As regards feeding habits beetles can be divided into those that are carnivorous and those that are vegetarian. Many carnivorous beetles are predatory, hunting their prey; these include members of the family Cicindelidae, Carabidae, Dytiscidae and Staphylinidae. Others are specialized for feeding on carrion, e.g. Silphidae, Histeridae and many of the Staphylinidae.

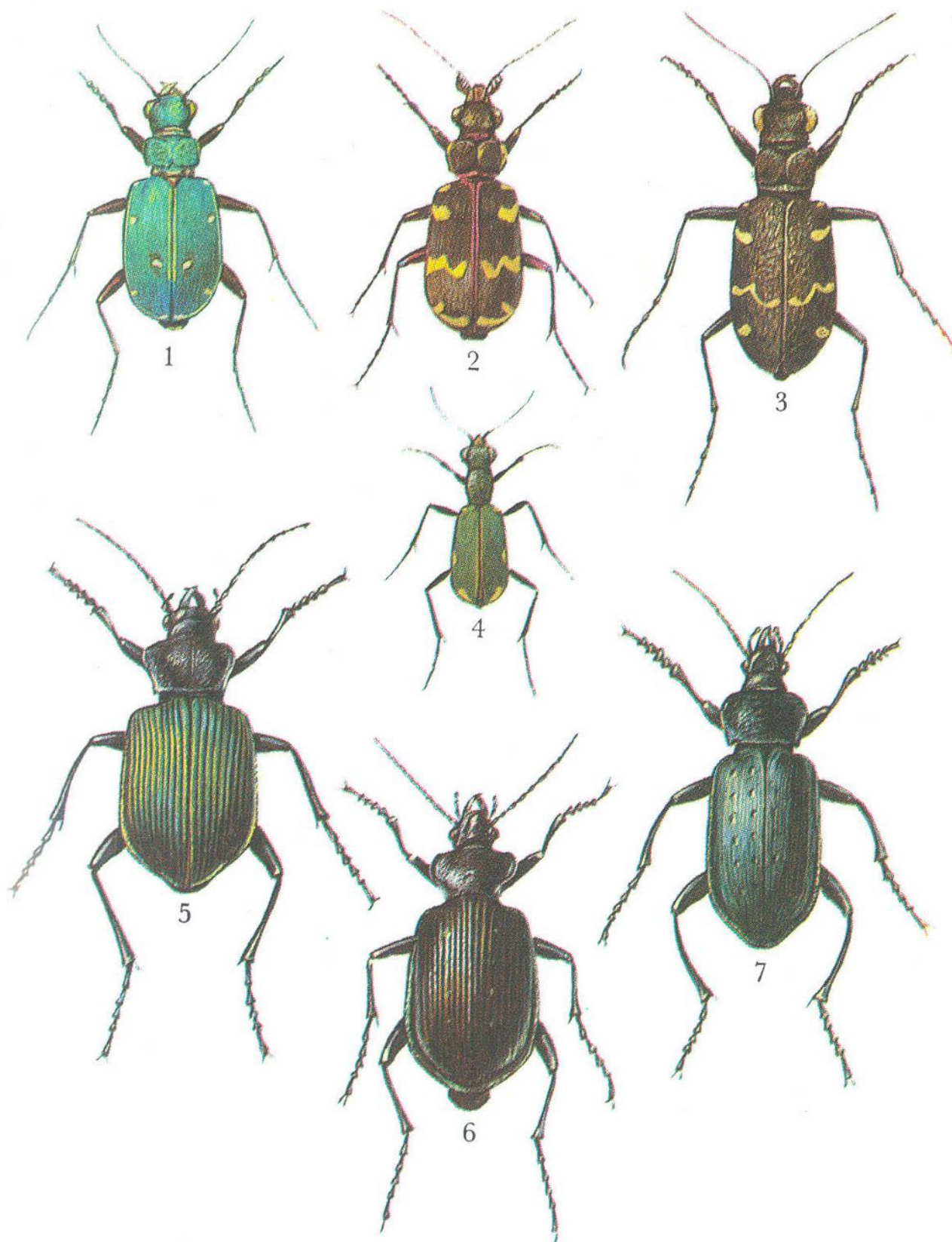
However, the majority of beetle species are vegetarian. Many feed on the external parts of plants, both as larvae and adults or only as adults. These include cockchafers, chrysomelids, weevils and bark beetles. A large number of beetles live as larvae within

the tissues of plants, including fungi, sometimes forming tunnels or galleries. In addition, there are also beetles that live in dung and dead vegetation. Very few beetles are parasites.

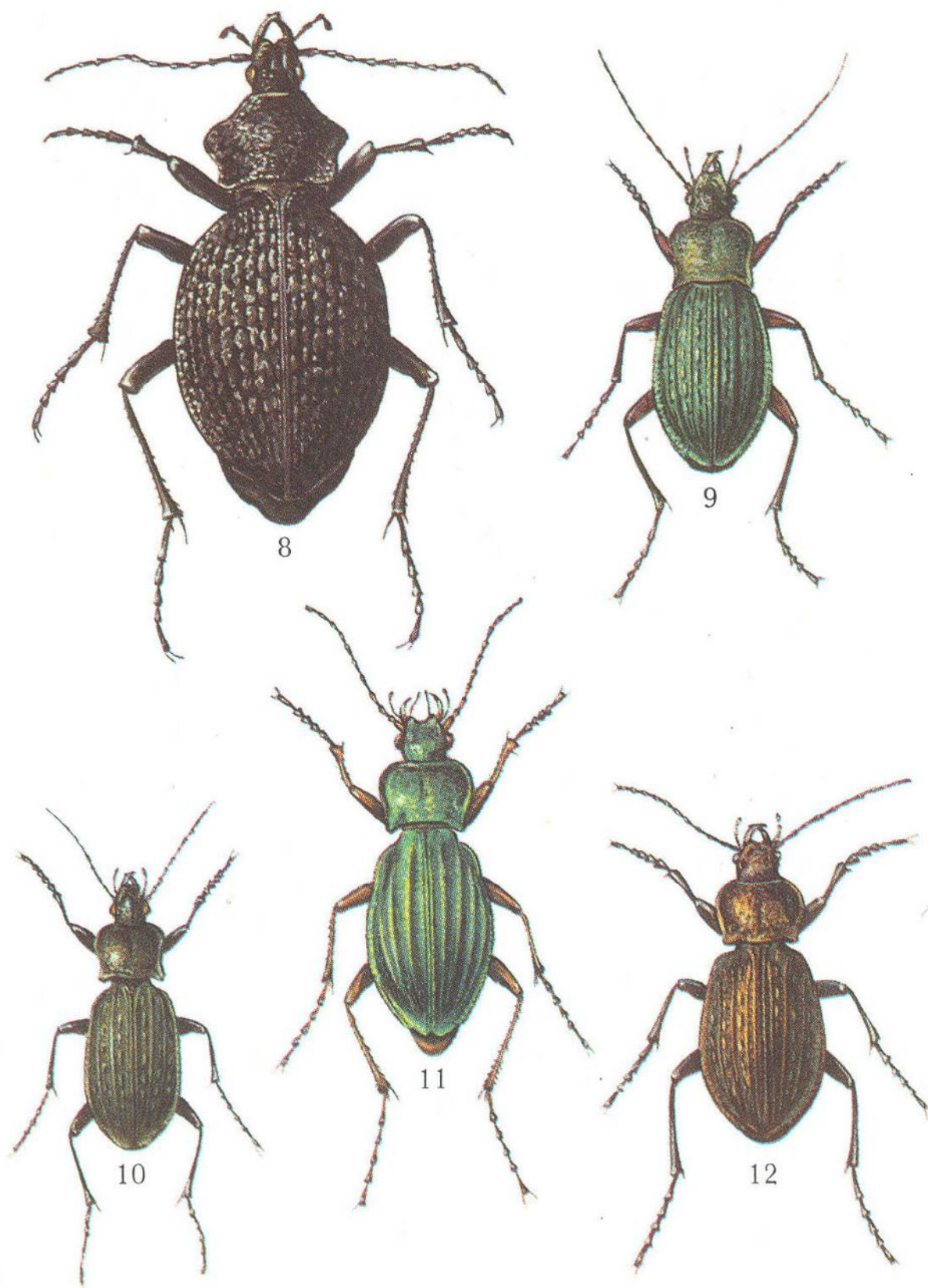
Classification of Beetles

The order Coleoptera is very large, containing over 350,000 species. In fact, it is the largest order within the animal kingdom. About 3,700 species have been recorded in Britain. The beetles described and named in the present book are classified in their families; in scientific circles the suffix *-idae* denotes a family.

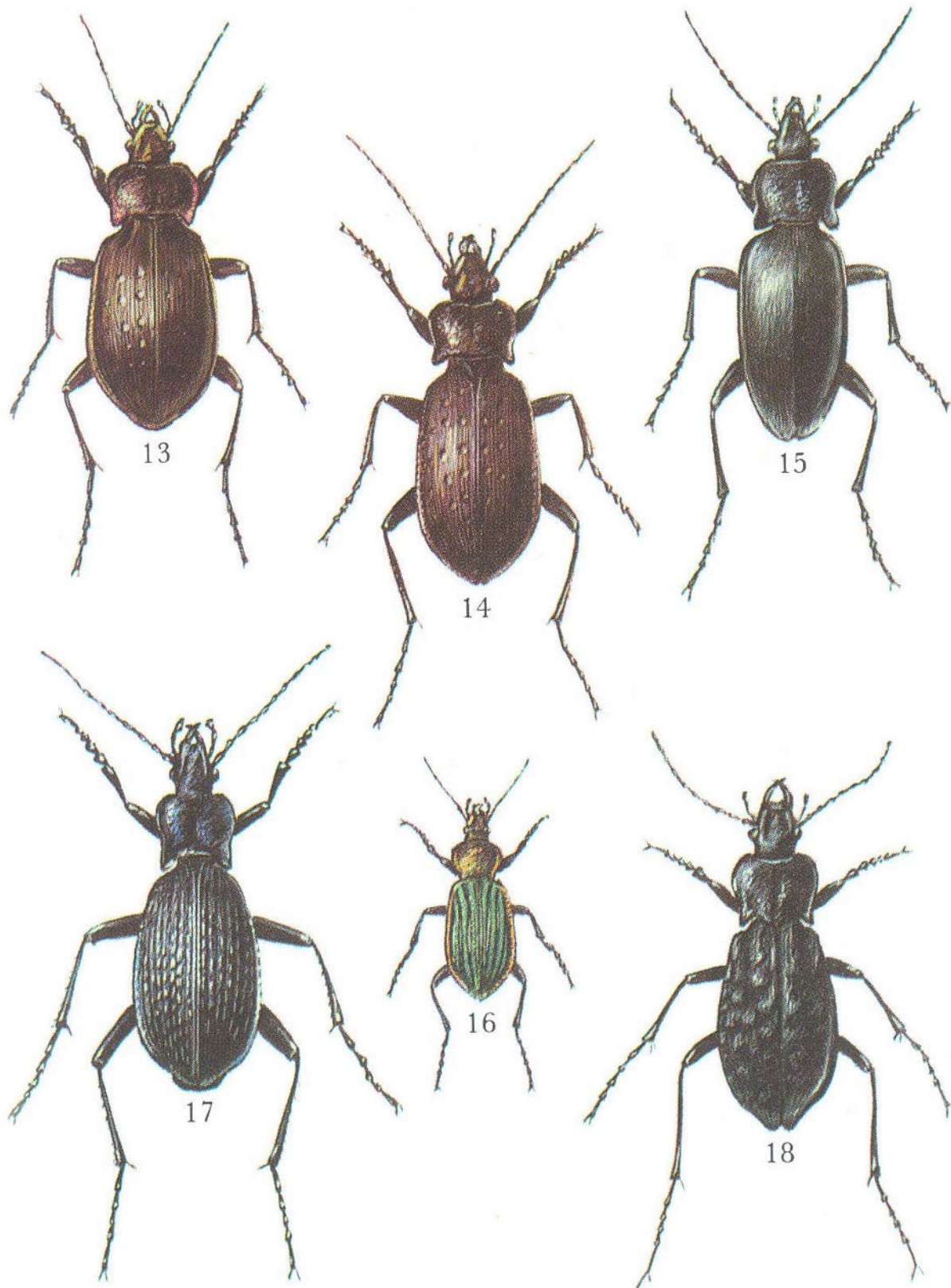
Several different schemes have been devised for classifying the families into higher groups, *viz.* suborders and superfamilies. These schemes are described in some of the publications listed under 'Bibliography' at the end of the book.



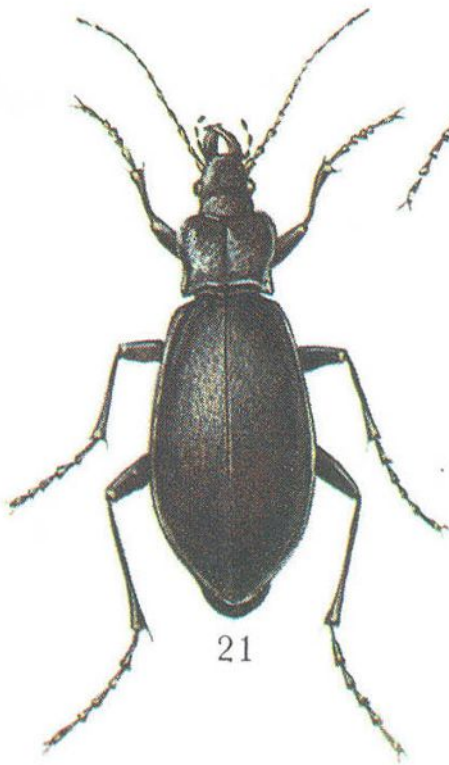
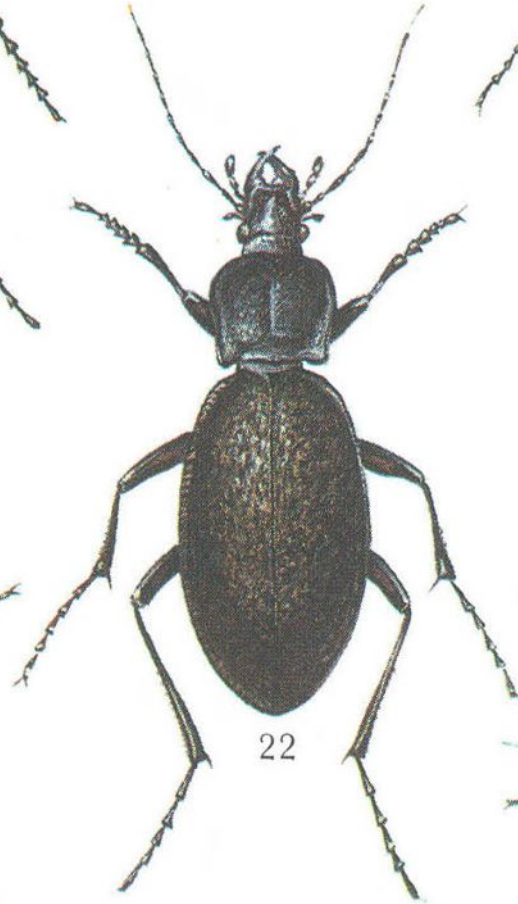
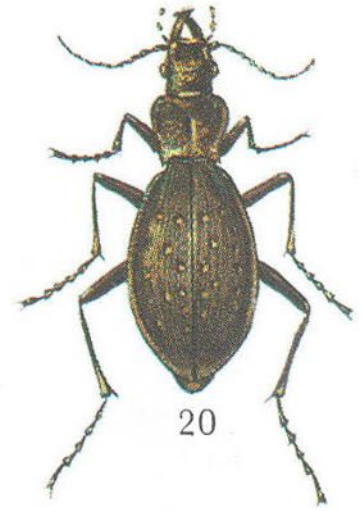
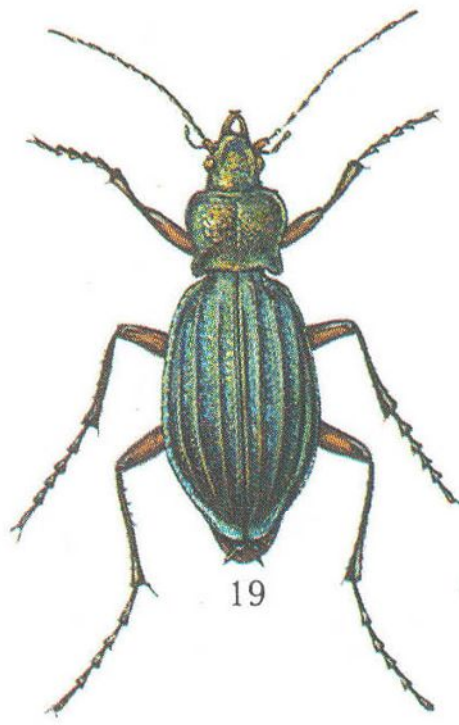
1. *Cicindela campestris*, Green Tiger Beetle. — 2. *C. hybrida*. — 3. *C. sylvatica*, Wood Tiger Beetle. — 4. *C. germanica*. — 5. *Calosoma sycophanta*. — 6. *C. inquisitor*. — 7. *C. auropunctatum*.



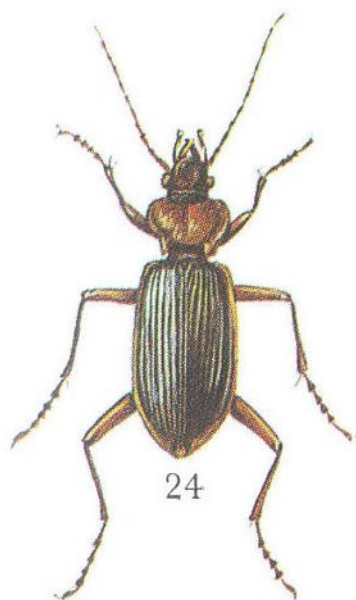
8. *Procerus gigas* — 9. *Carabus cancellatus*. — 10. *C. granulatus*. — 11. *C. auratus*.
— 12. *C. ullrichi*.



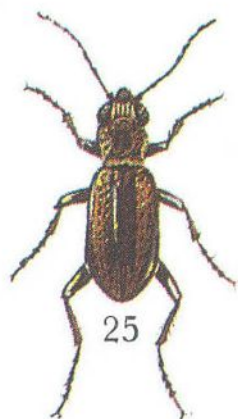
13. *Carabus nemoralis*. — 14. *C. hortensis*. — 15. *C. glabratus*. — 16. *C. nitens*. —
17. *C. intricatus*. — 18. *C. variolosus*.



19. *Carabus atronitens*. — 20. *C. irregularis*. — 21. *C. violaceus*, Violet Ground Beetle. — 22. *C. coriaceus*. — 23. *Cychrus caraboides*.



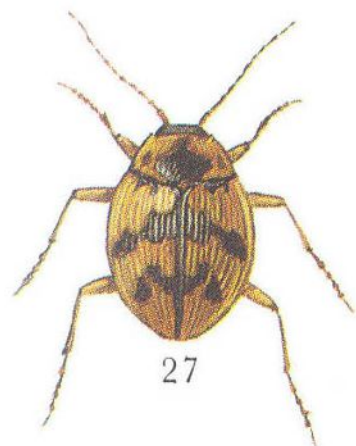
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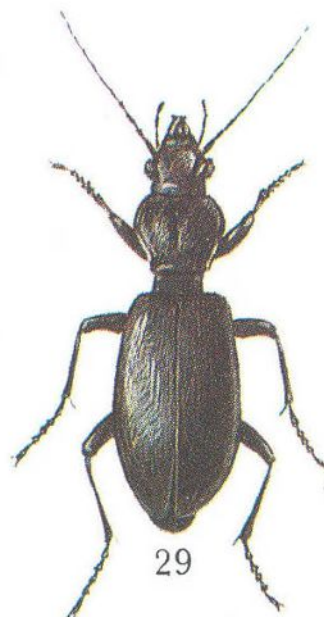
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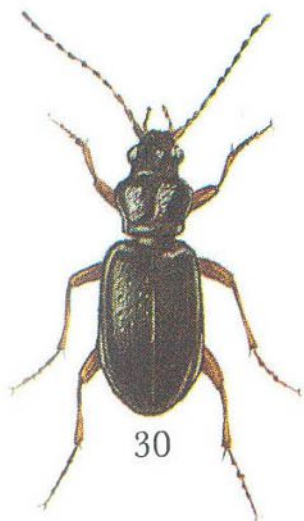
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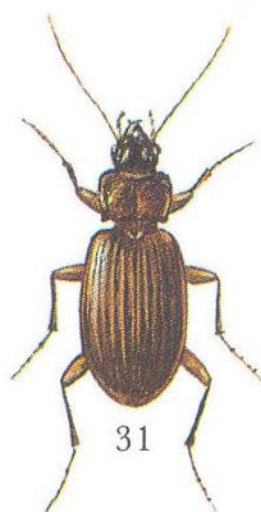
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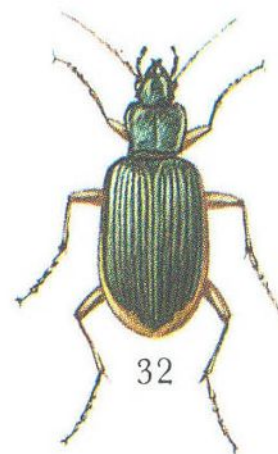
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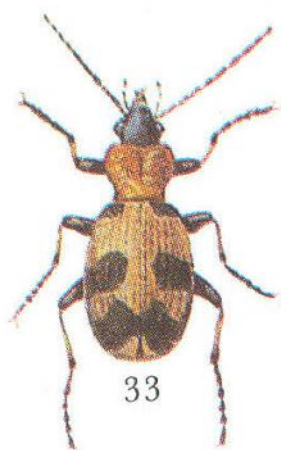


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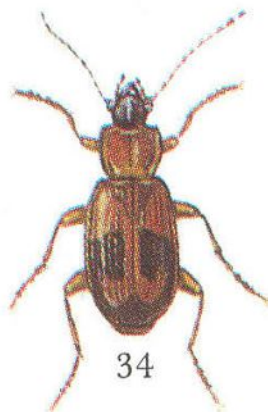


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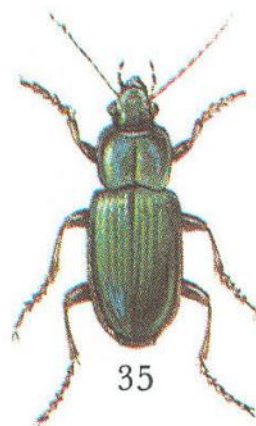
24. *Nebria livida*. — 25. *Notiophilus biguttatus*. — 26. *Elaphrus riparius*. —
 27. *Omophron limbatum*. — 28. *Clivina fossor*. — 29. *Broscus cephalotes*. — 30.
Bembidion lampros. — 31. *Trechus quadristriatus*. — 32. *Chlaenius vestitus*.



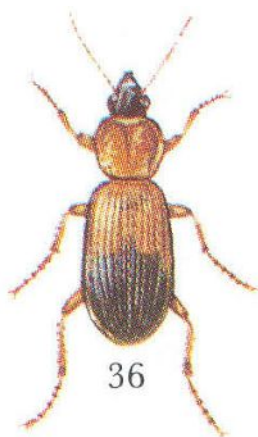
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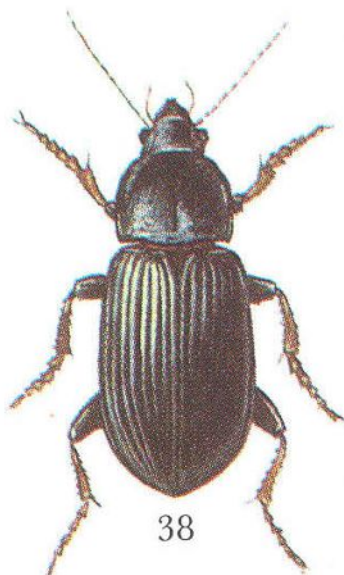
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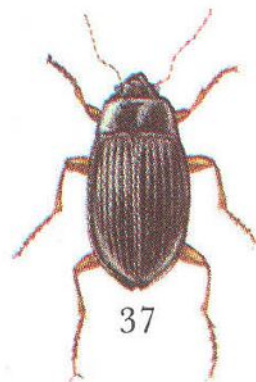
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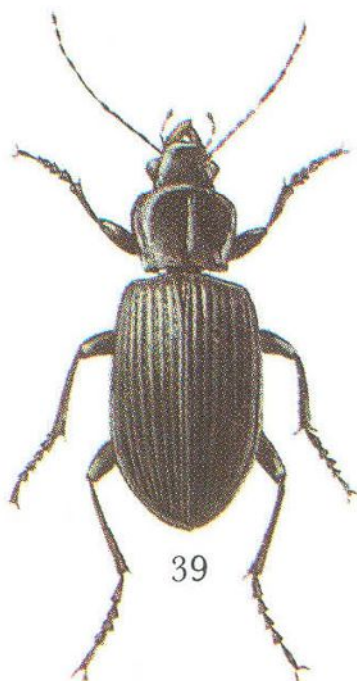
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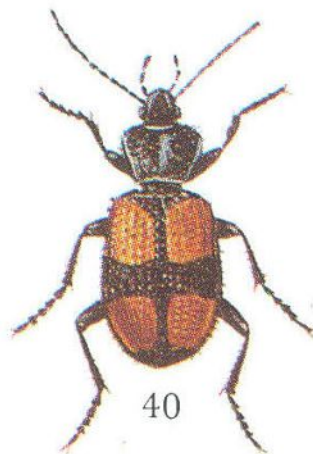
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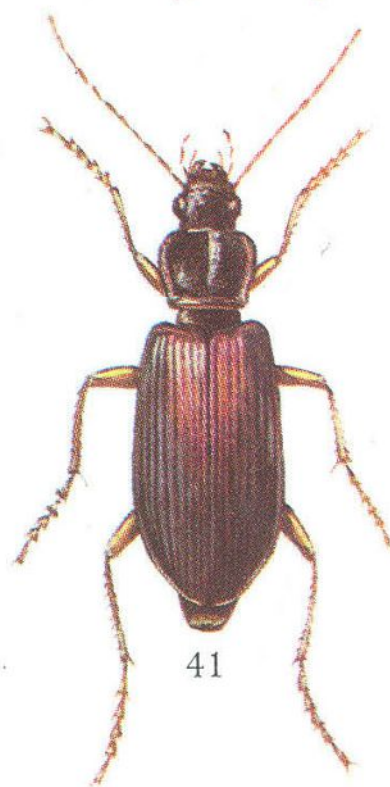
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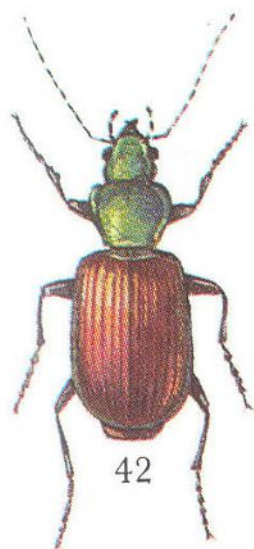


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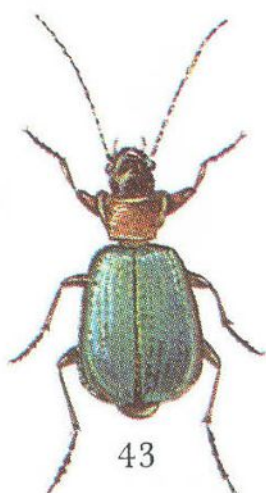


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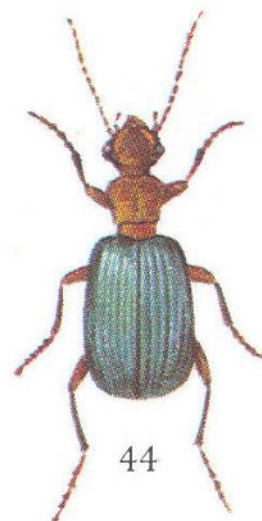
33. *Callistus lunatus*. — 34. *Badister unipustulatus*. — 35. *Harpalus aeneus*. —
 36. *Stenolophus teutonus*. — 37. *Amara familiaris*. — 38. *Zabrus tenebroides*. —
 39. *Feronia melanaria*. — 40. *Panagaeus bipustulatus*. — 41. *Dolichus halensis*.



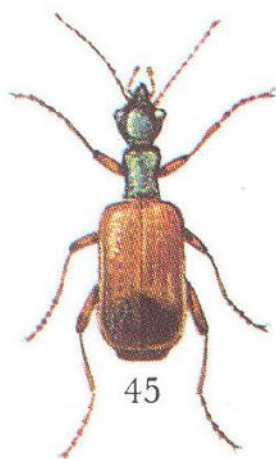
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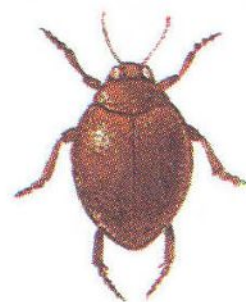
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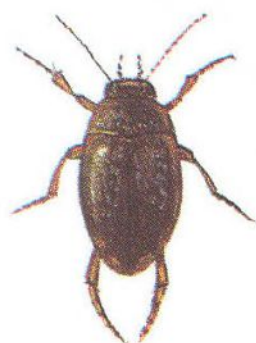
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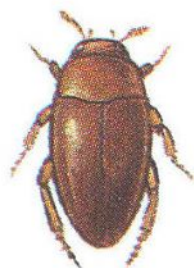
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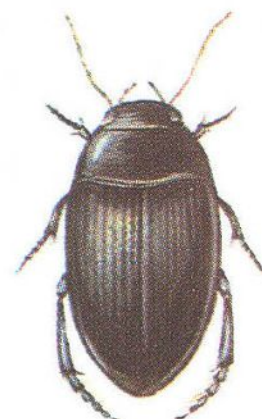
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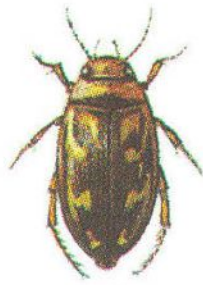


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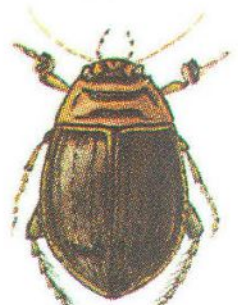
42. *Agonum sexpunctatum*. — 43. *Lebia cyanocephala*. — 44. *Brachinus crepitans*, Bombardier Beetle. — 45. *Calliura melanura*. — 46. *Haliphus ruficollis*. — 47. *Hyphydrus ovatus*. — 48. *Hydroporus palustris*. — 49. *Noterus clavicornis*. — 50. *Laccophilus hyalinus*. — 51. *Agabus bipustulatus*.



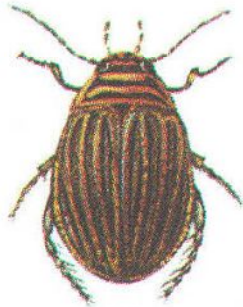
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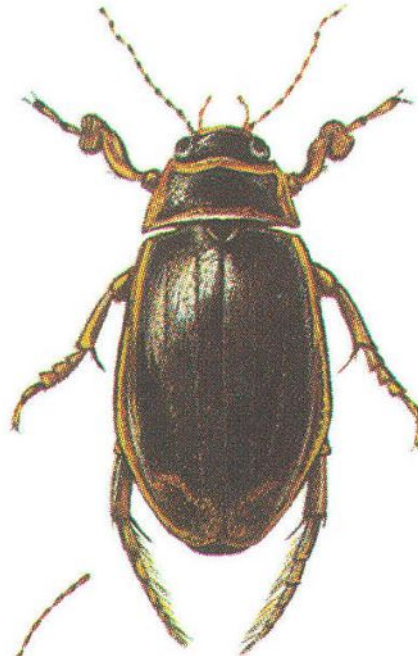
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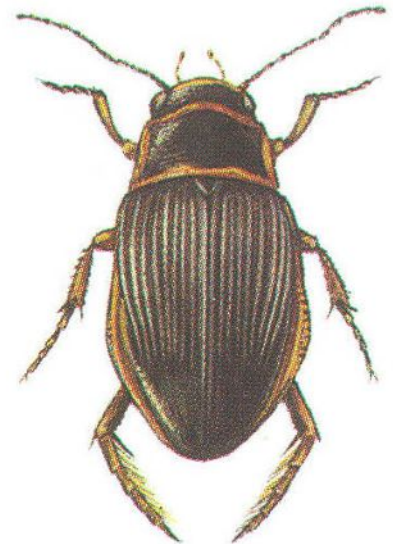
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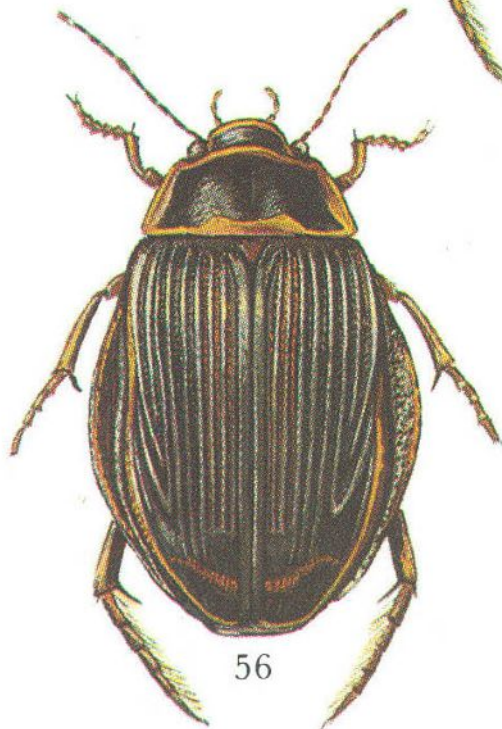
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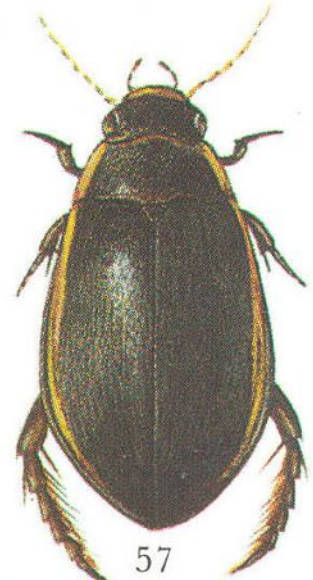
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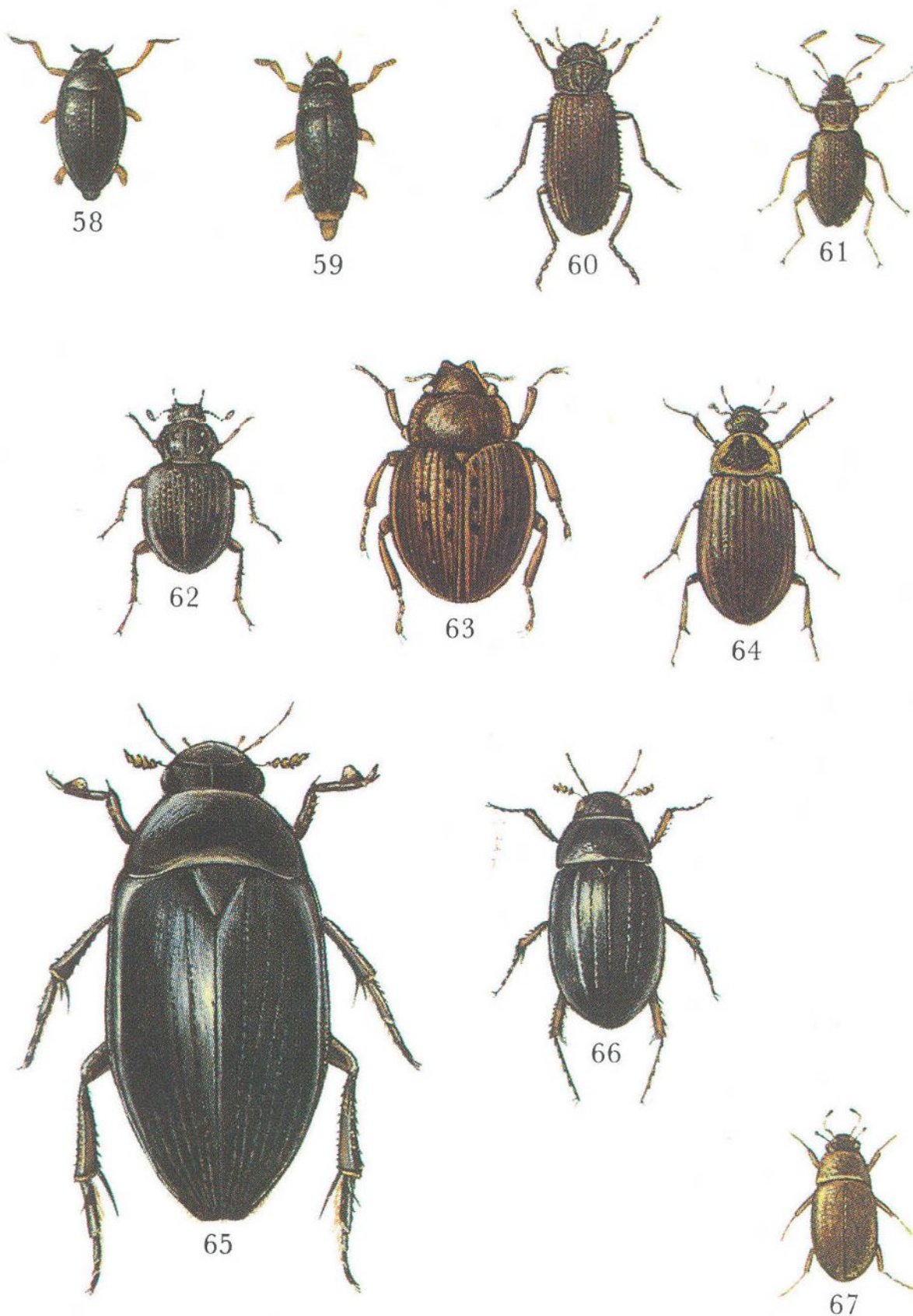


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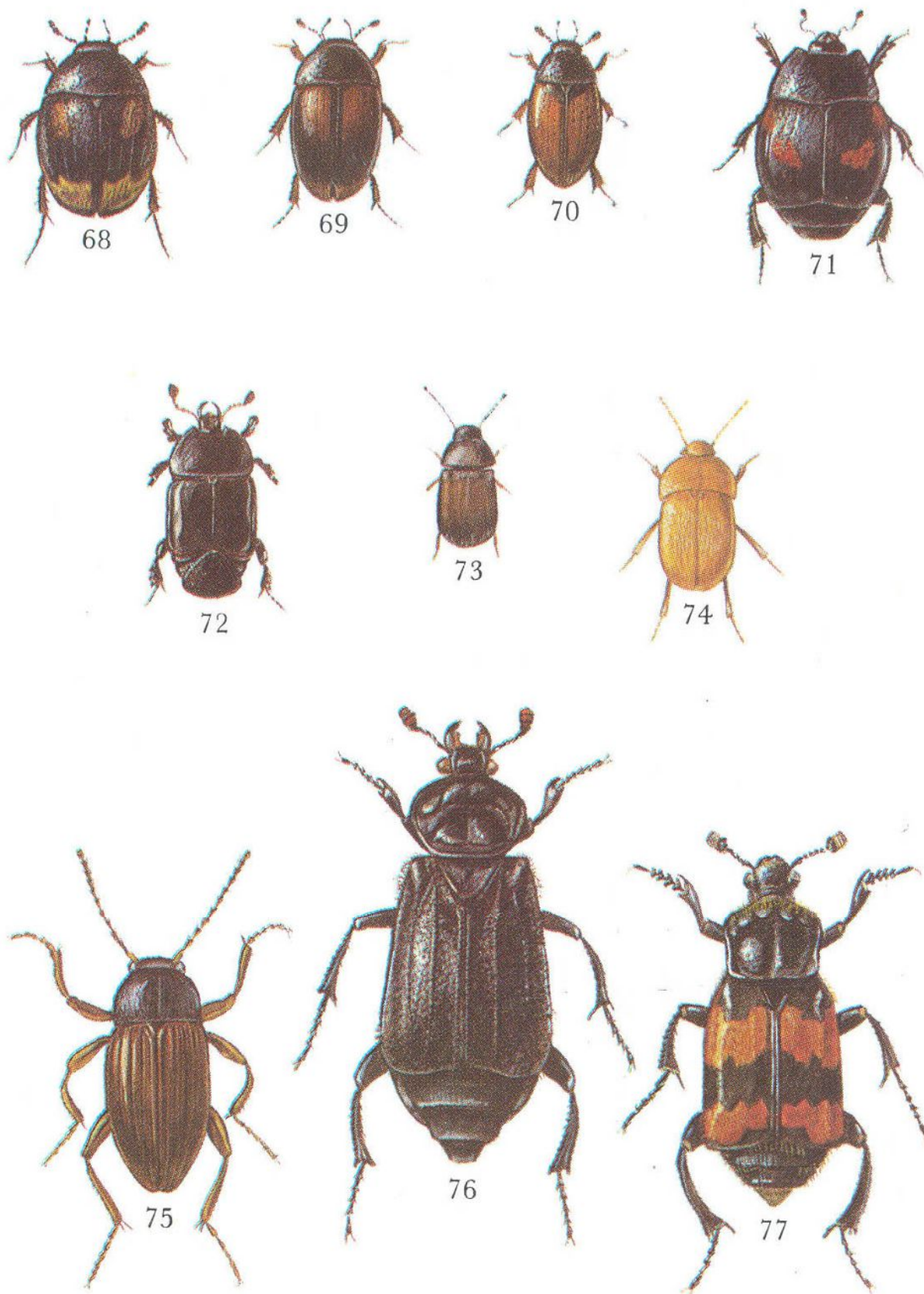


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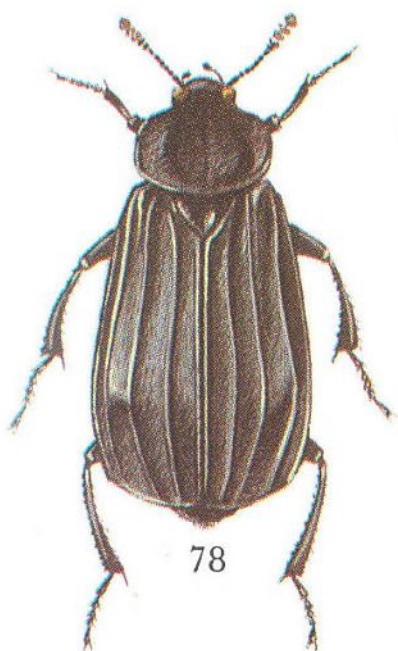
52. *Platambus maculatus*. — 53. *Colymbetes fuscus*. — 54. *Acilius sulcatus*. — 55. *Dytiscus marginalis*, Diving Beetle. — 56. *D. latissimus*. — 57. *Cybister laterimarginalis*.



58. *Gyrinus natator*. — 59. *Orectochilus villosus*, Hairy Whirligig. — 60. *Helophorus aquaticus*. — 61. *Hydraena riparia*. — 62. *Octhebius gibbosus*. — 63. *Spercheus emarginatus*. — 64. *Berosus luridus*. — 65. *Hydrophilus piceus*, Great Silver Beetle. — 66. *Hydrochara caraboides*. — 67. *Enochrus affinis*.



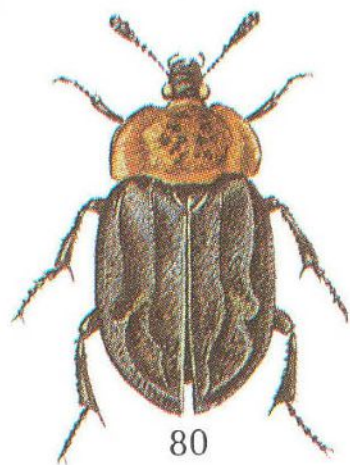
68. *Sphaeridium scarabaeoides*. — 69. *Cercyon haemorrhoidalis*. = 70. *C. pygmaeus*. — 71. *Hister quadrinotatus*. — 72. *Hololepta plana*. — 73. *Ptiliolum kunzei*. — 74. *Leptinus testaceus*. — 75. *Choleva agilis*. — 76. *Necrophorus humator*. — 77. *N. vespillo*.



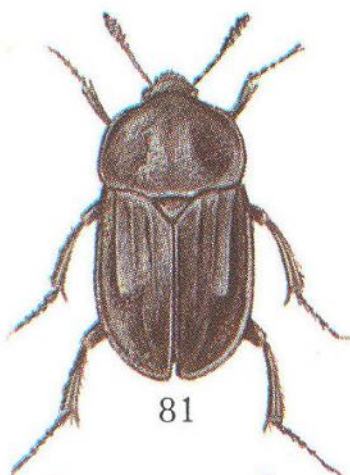
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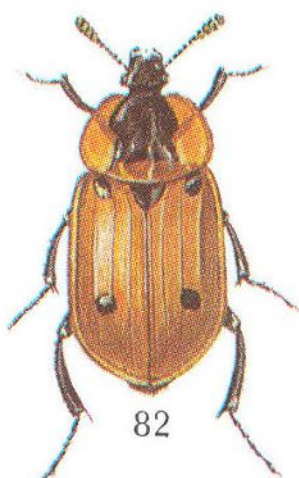
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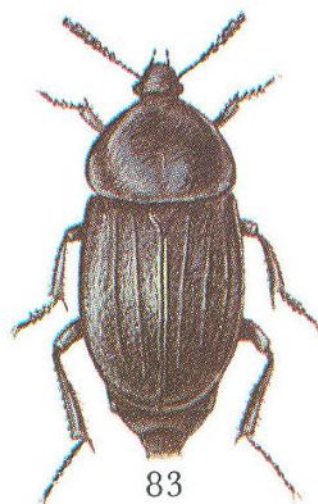
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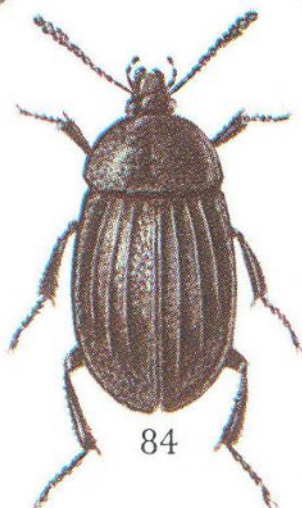
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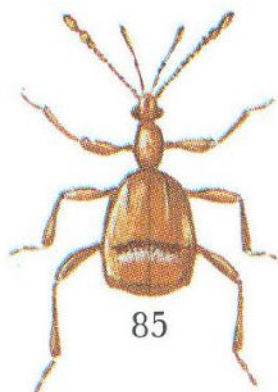
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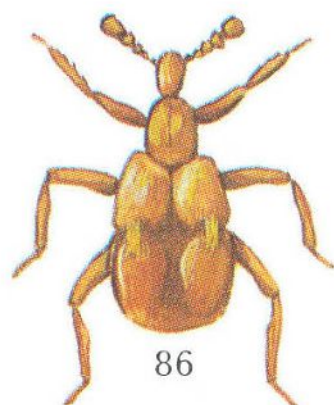
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84

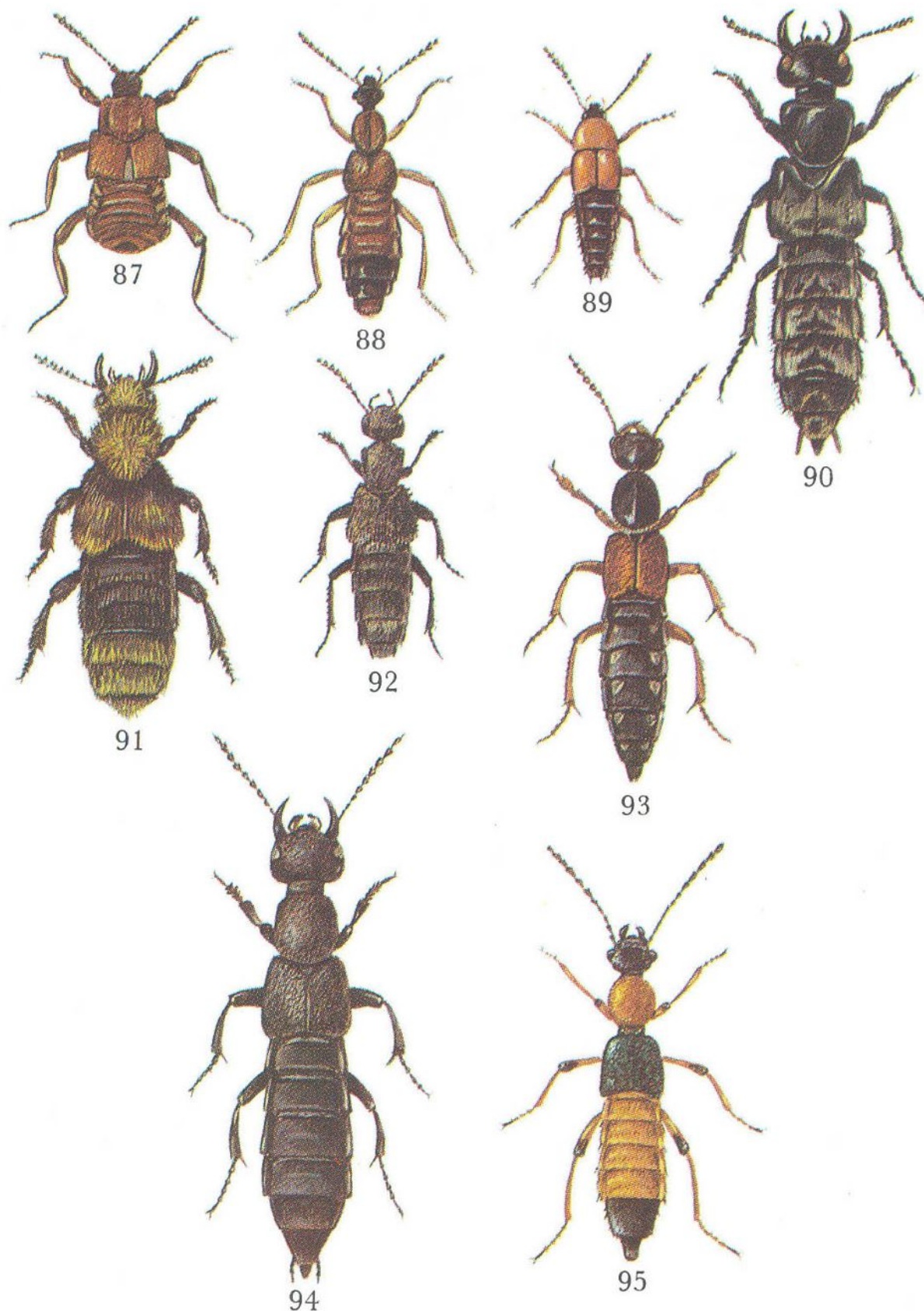


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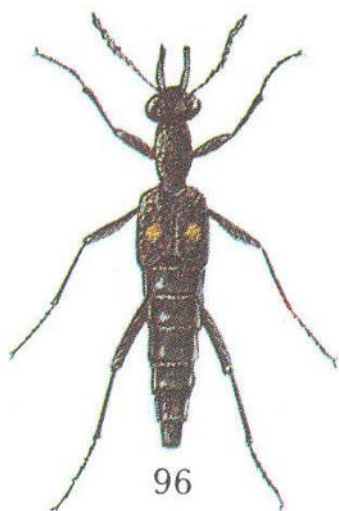


86

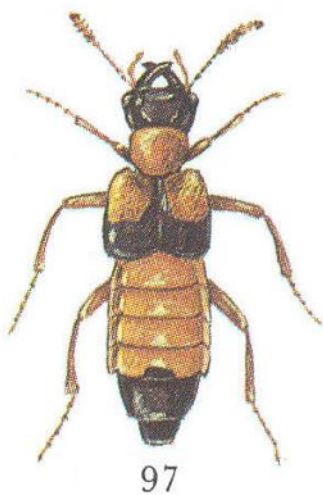
78. *Necrodes litoralis*. – 79. *Thanatophilus rugosus*. – 80. *Oeceoptoma thoracica*.
 – 81. *Aclypea opaca*. – 82. *Xylodrepa quadripunctata*. – 83. *Silpha obscura*. –
 84. *Phosphuga atrata*. – 85. *Pselaphus heisei*. – 86. *Claviger testaceus*.



87. *Lomechusoides strumosa*. — 88. *Astilbus canaliculatus*. — 89. *Tachyporus chrysomelinus*. — 90. *Creophilus maxillosus*. — 91. *Emus hirtus*. — 92. *Ontholestes murinus*. — 93. *Staphylinus caesareus*. — 94. *S. olens*, Devil's Coach-horse. — 95. *Paederus litoralis*.



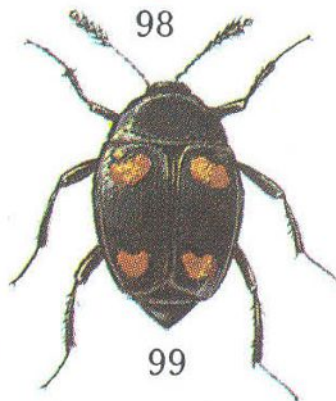
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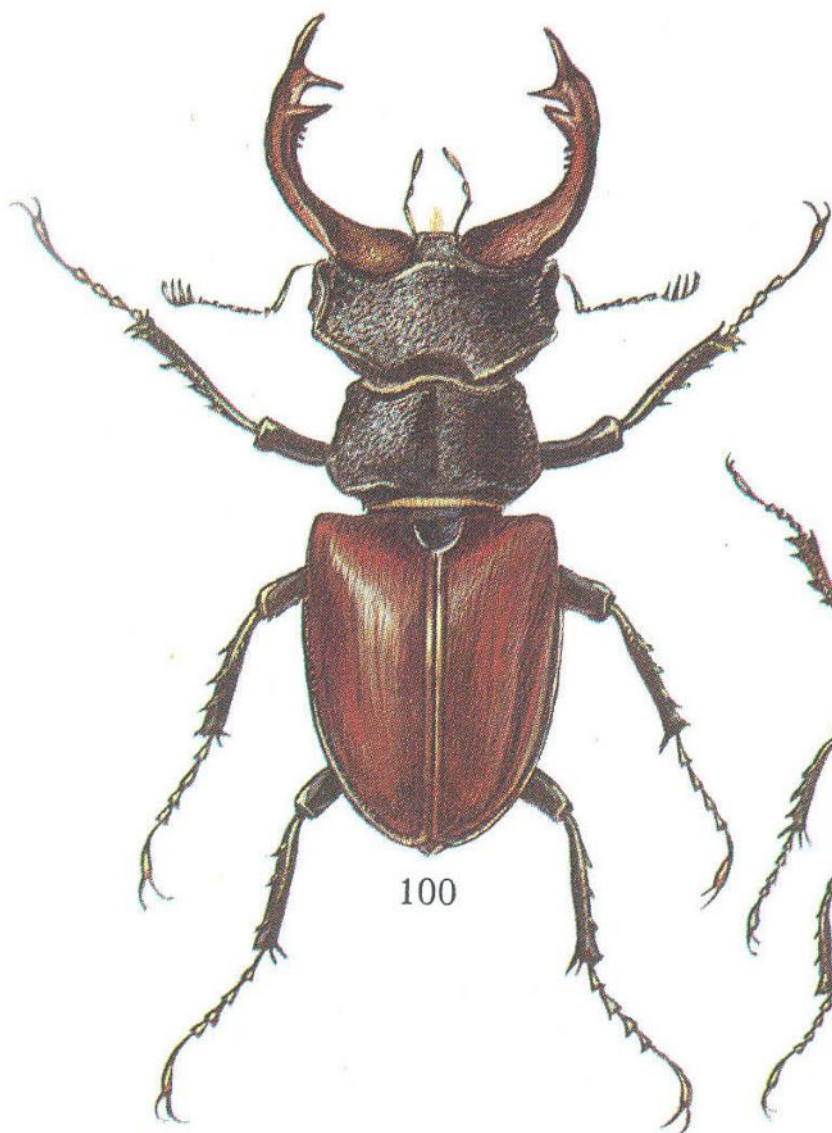
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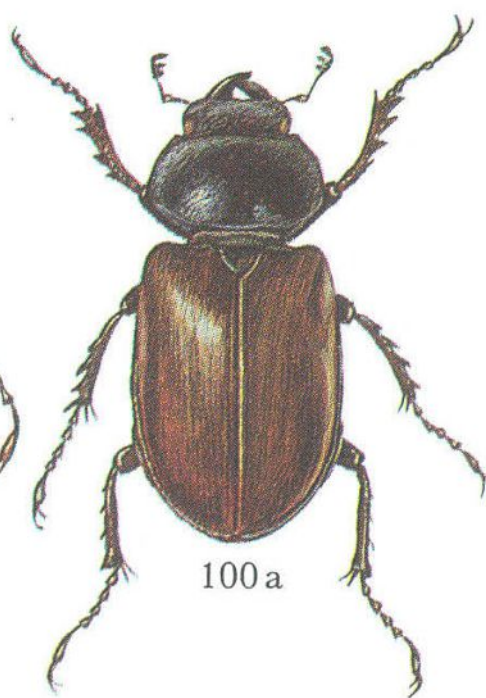
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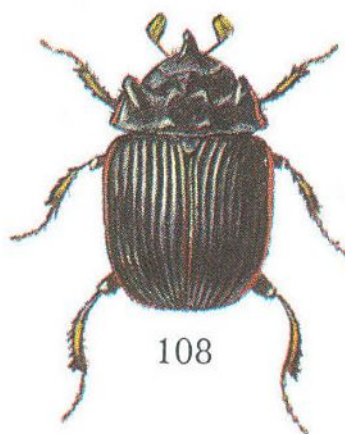
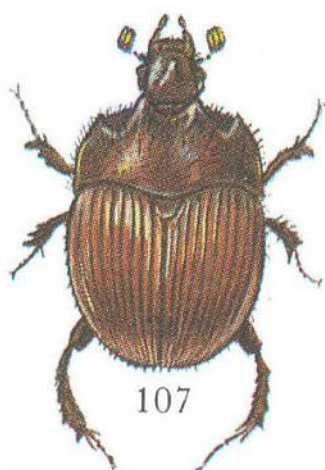
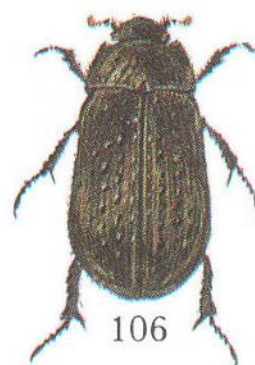
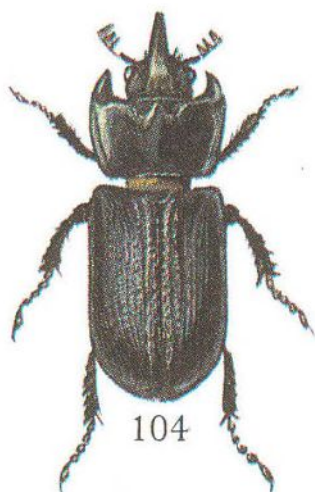
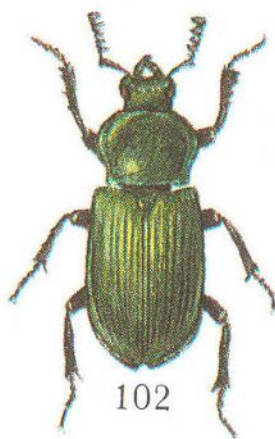
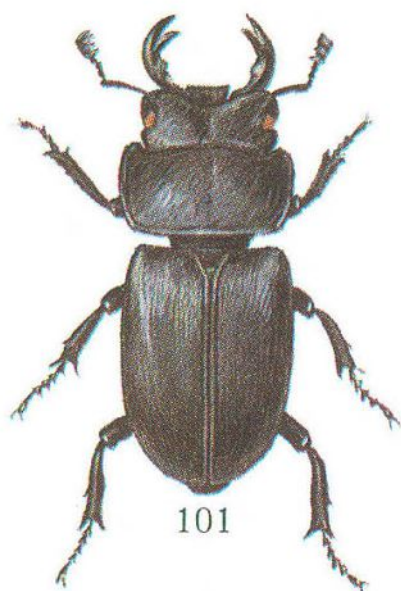


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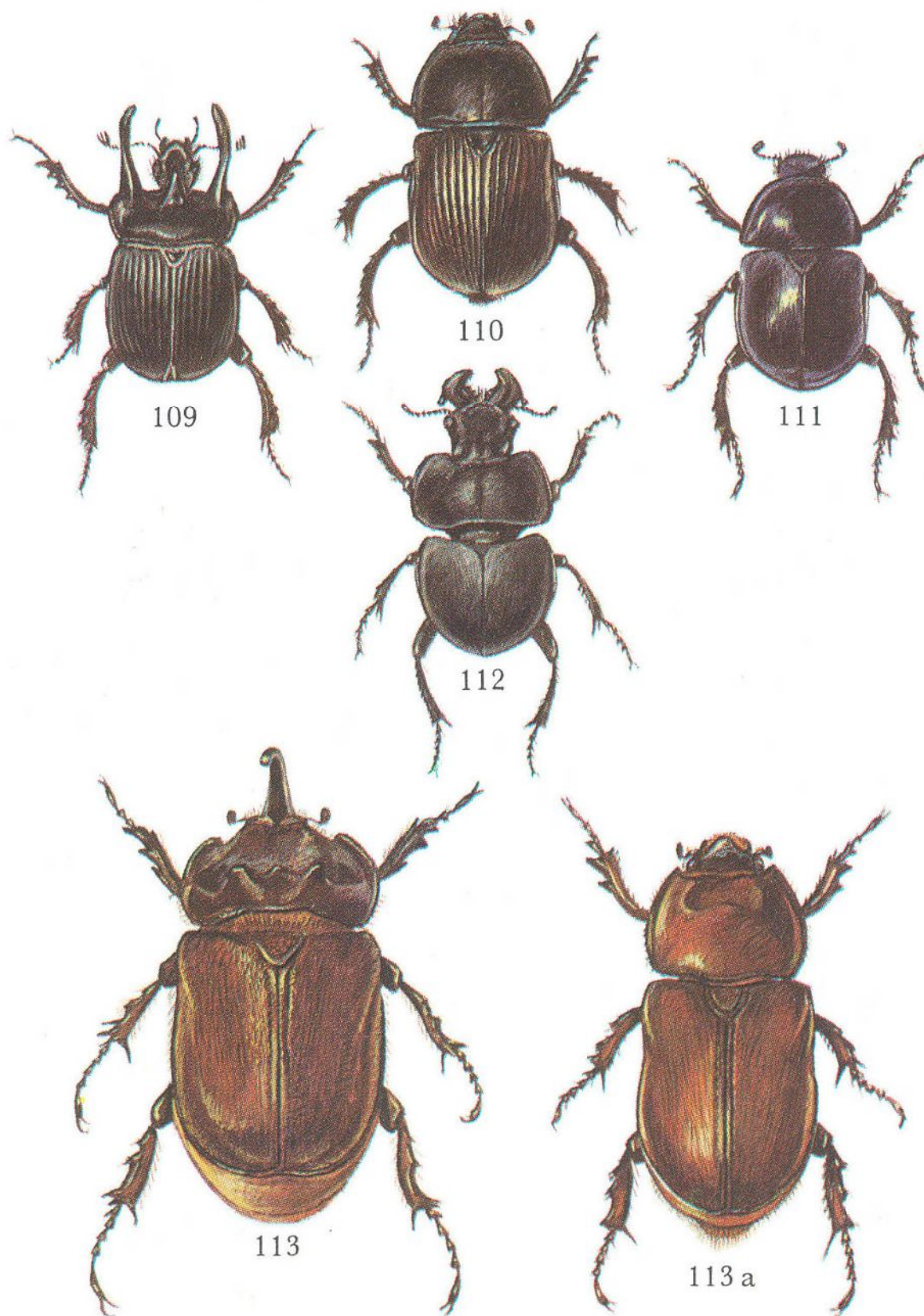


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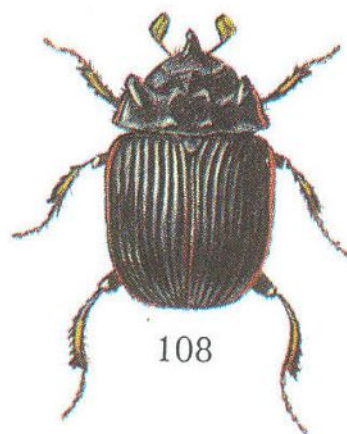
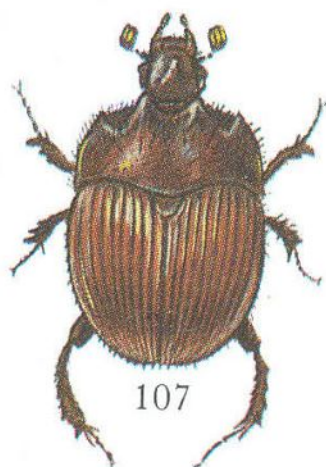
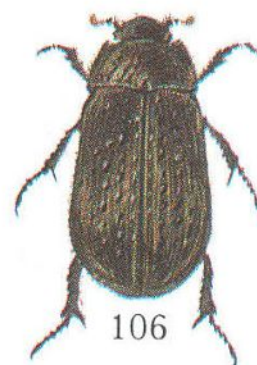
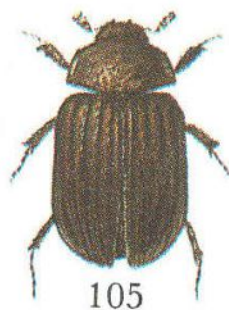
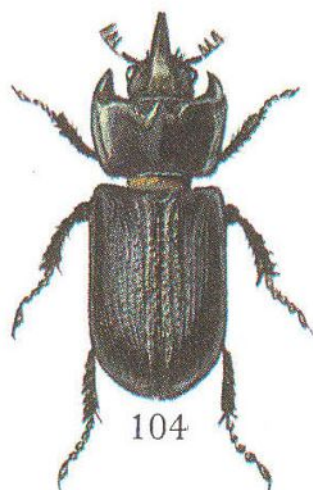
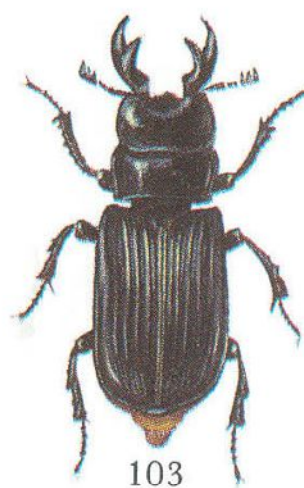
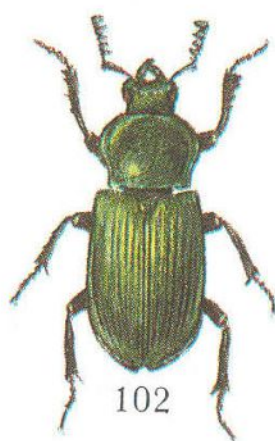
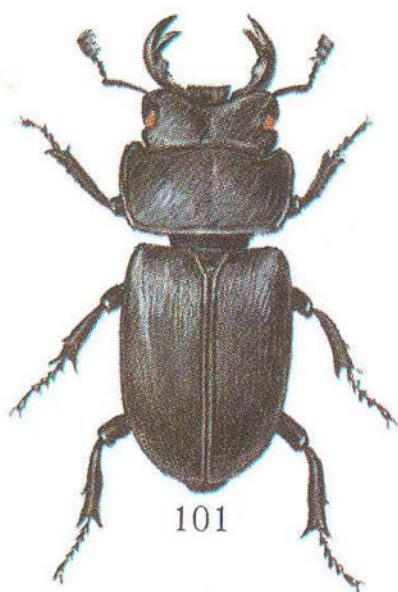
96. *Stenus biguttatus*. — 97. *Oxyporus rufus*. — 98. *Bledius furcatus*. — 99. *Scaphidium quadrimaculatum*. — 100. *Lucanus cervus*, Stag Beetle.



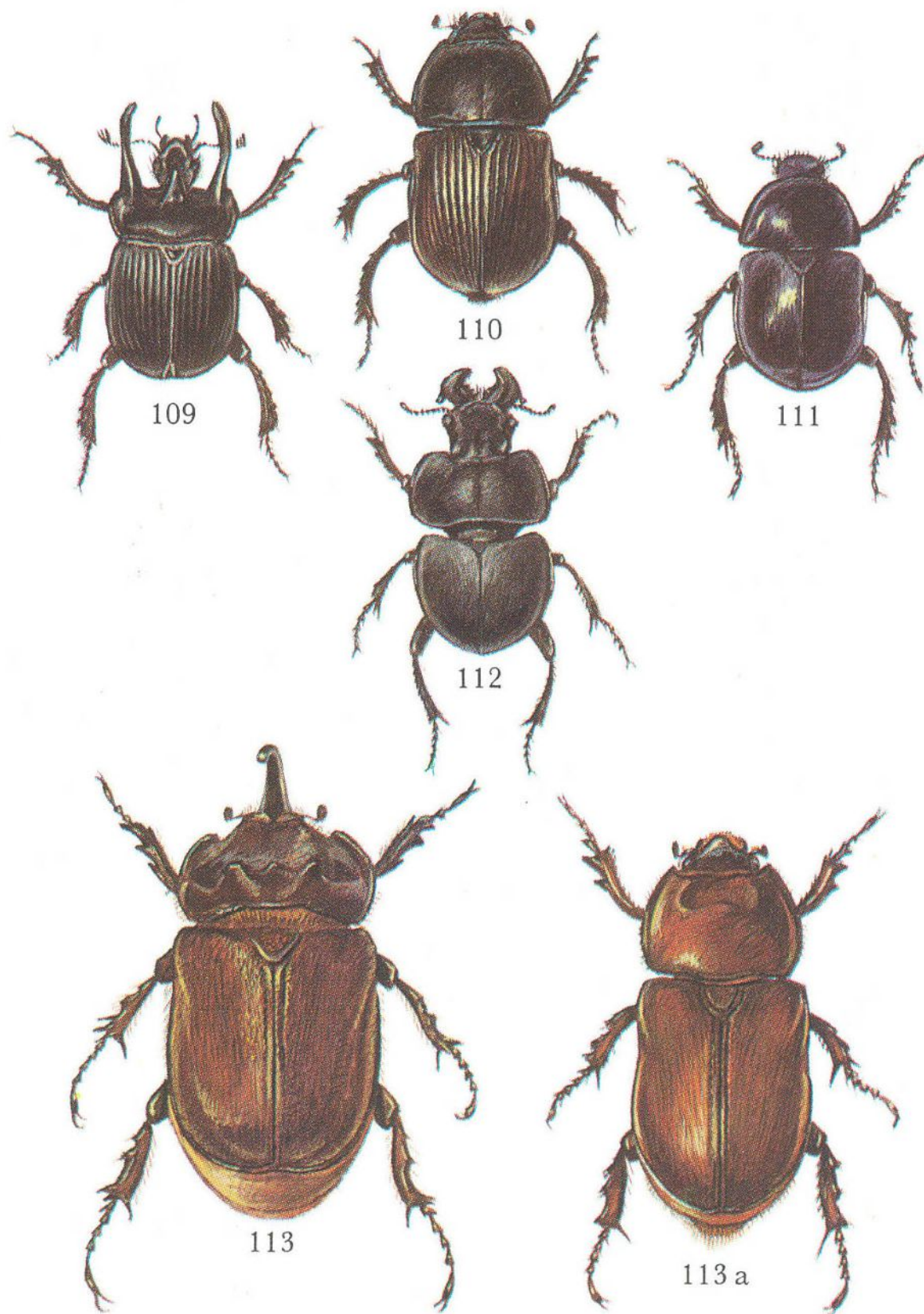
101. *Dorcus parallelipipedus*, Lesser Stag Beetle. — 102. *Platycerus caraboides*. — 103. *Ceruchus chrysomelinus*. — 104. *Sinodendron cylindricum*. — 105. *Aesalus scarabaeoides*. — 106. *Trox hispidus*. — 107. *Bolboceras unicorne*. — 108. *Odontaeus armiger*.



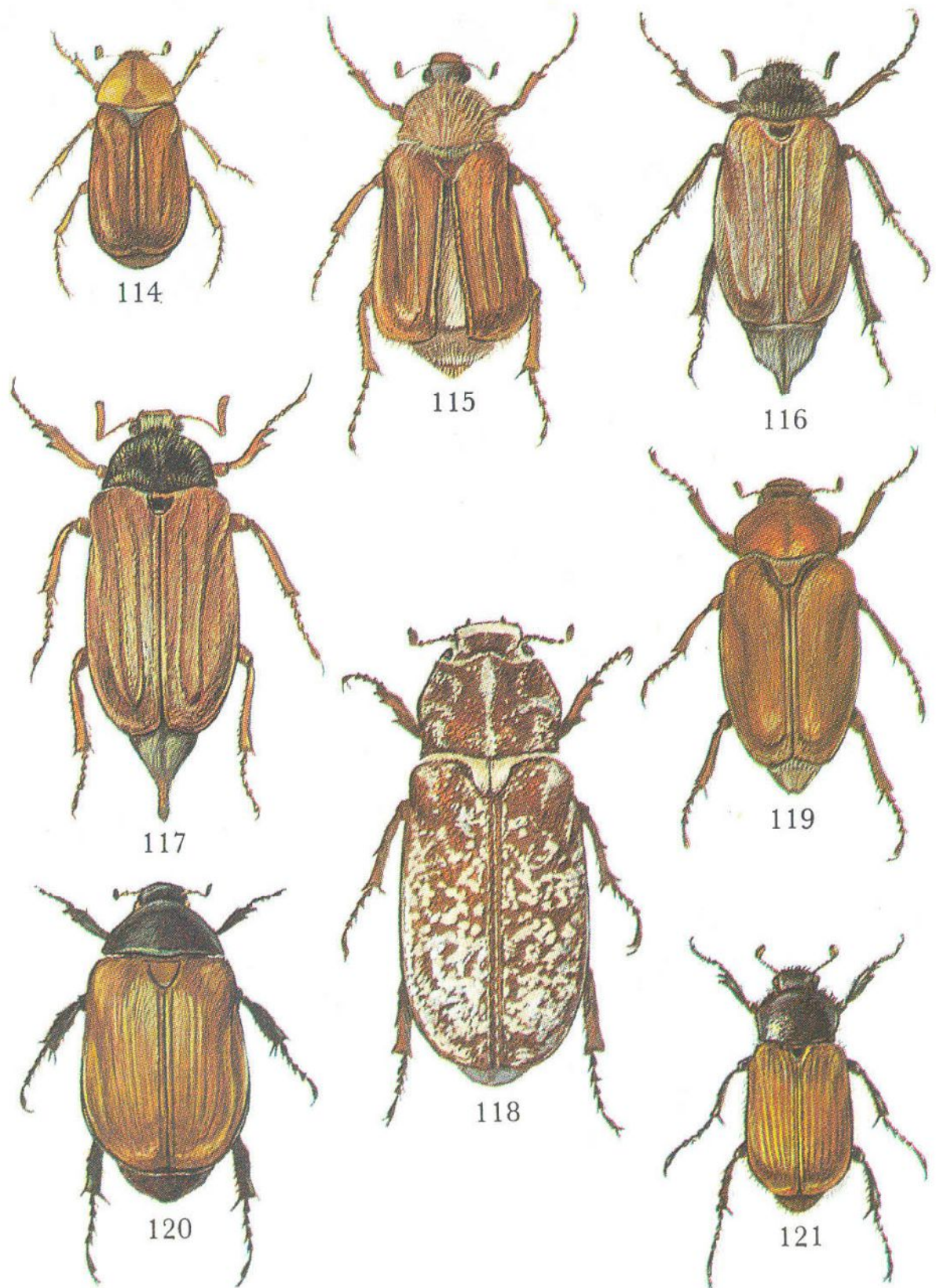
109. *Typhaeus typhoeus*. — 110. *Geotrupes stercorarius*, Dor Beetle. — 111. *G. vernalis*. — 112. *Lethrus apterus*. — 113. *Oryctes nasicornis*.



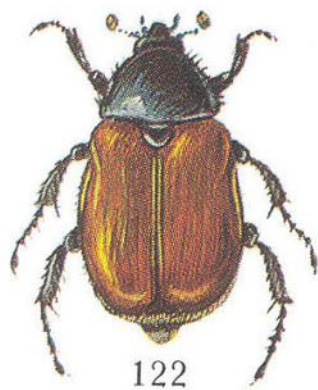
101. *Dorcus parallelipipedus*, Lesser Stag Beetle. — 102. *Platycerus caraboides*. — 103. *Ceruchus chrysomelinus*. — 104. *Sinodendron cylindricum*. — 105. *Aesalus scarabaeoides*. — 106. *Trox hispidus*. — 107. *Bolboceras unicorne*. — 108. *Odontaeus armiger*.



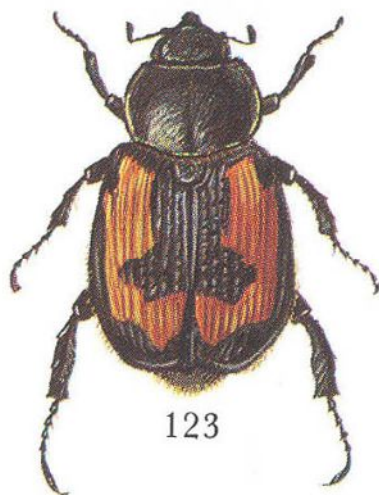
109. *Typhaeus typhoeus*. — 110. *Geotrupes stercorarius*, Dor Beetle. — 111. *G. vernalis*. — 112. *Lethrus apterus*. — 113. *Oryctes nasicornis*.



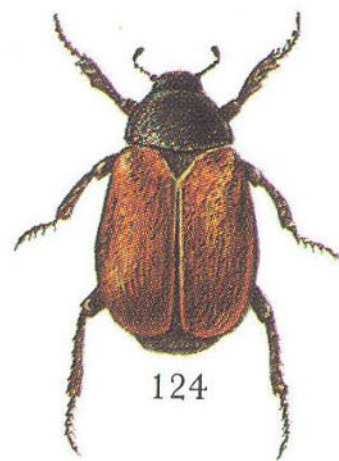
114. *Rhizotrogus aestivus*. — 115. *Amphimallon solstitialis*. — 116. *Melolontha hippocastani*. — 117. *M. melolontha*, Cockchafer. — 118. *Polyphylla fullo*. — 119. *Anoxia villosa*. — 120. *Anomala dubia*. — 121. *Phyllopertha horticola*, Garden Chafer.



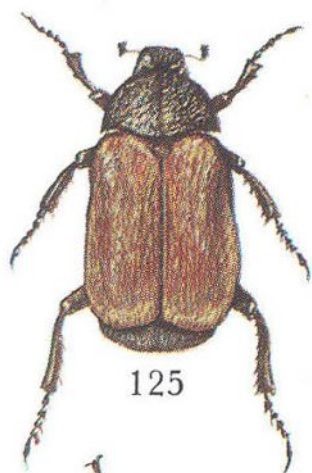
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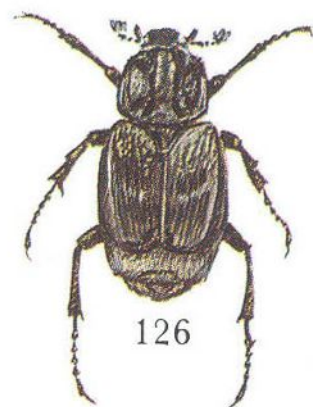
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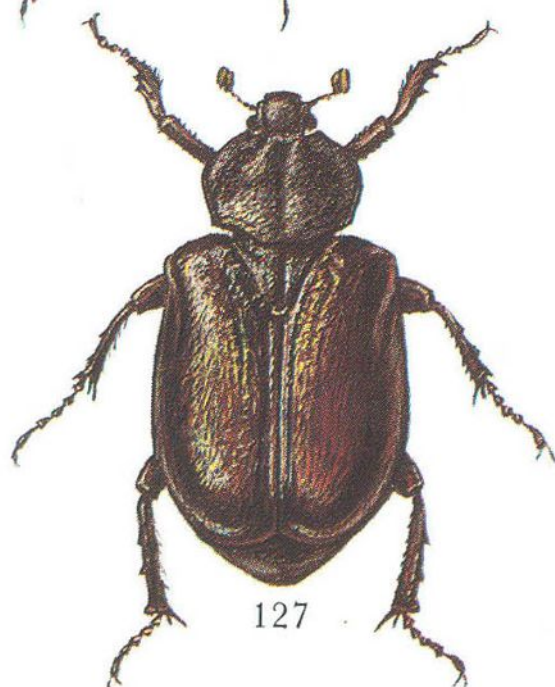
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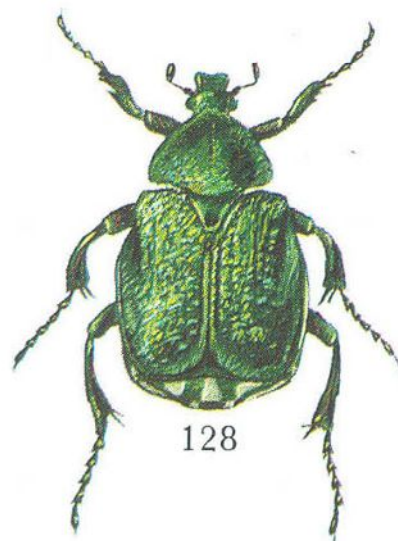
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126

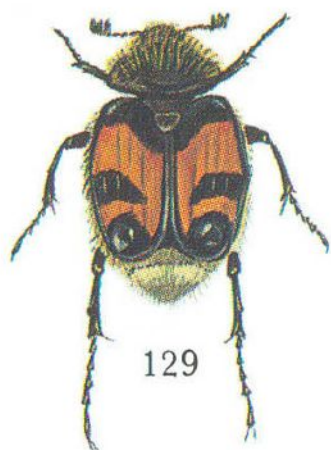


127

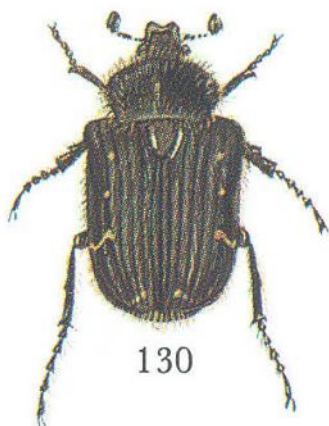


128

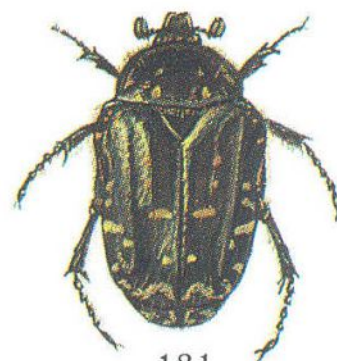
122. *Anisoplia segetum*. — 123. *A. cyathigera*. — 124. *Hoplia farinosa*. — 125. *H. philanthus*. — 126. *Valgus hemipterus*. — 127. *Osmoderma eremita*. — 128. *Gnorimus nobilis*.



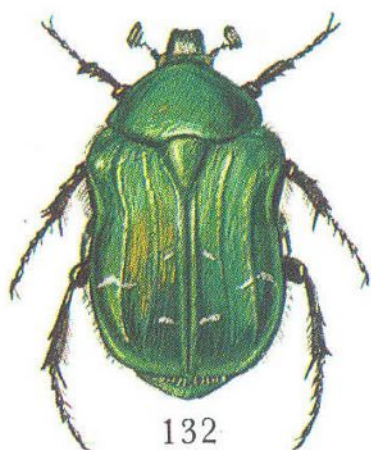
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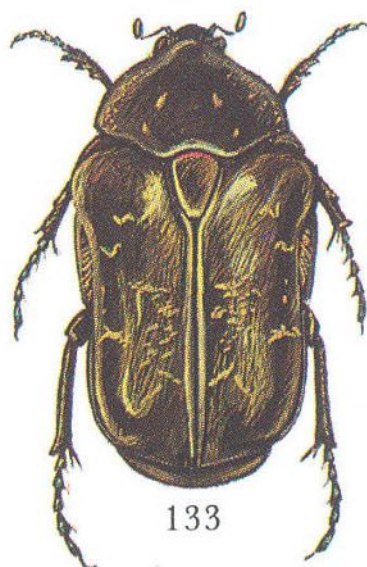
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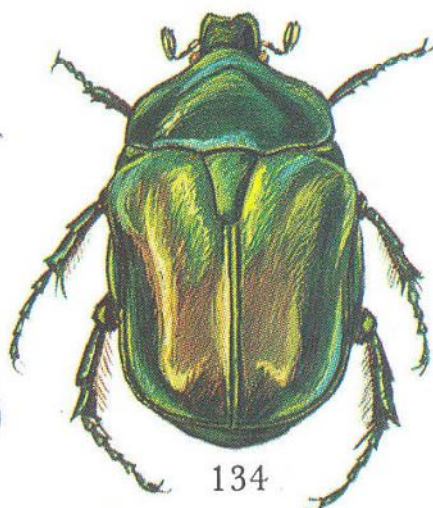
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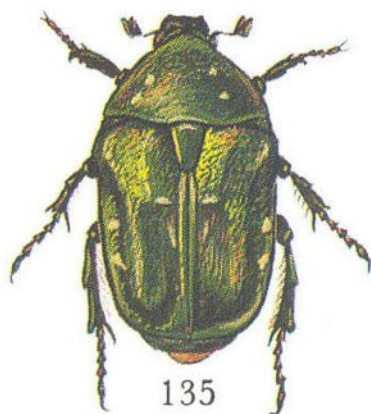
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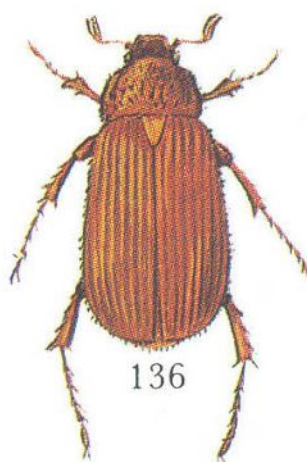
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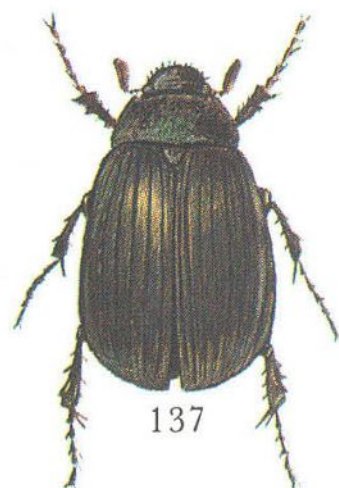
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135

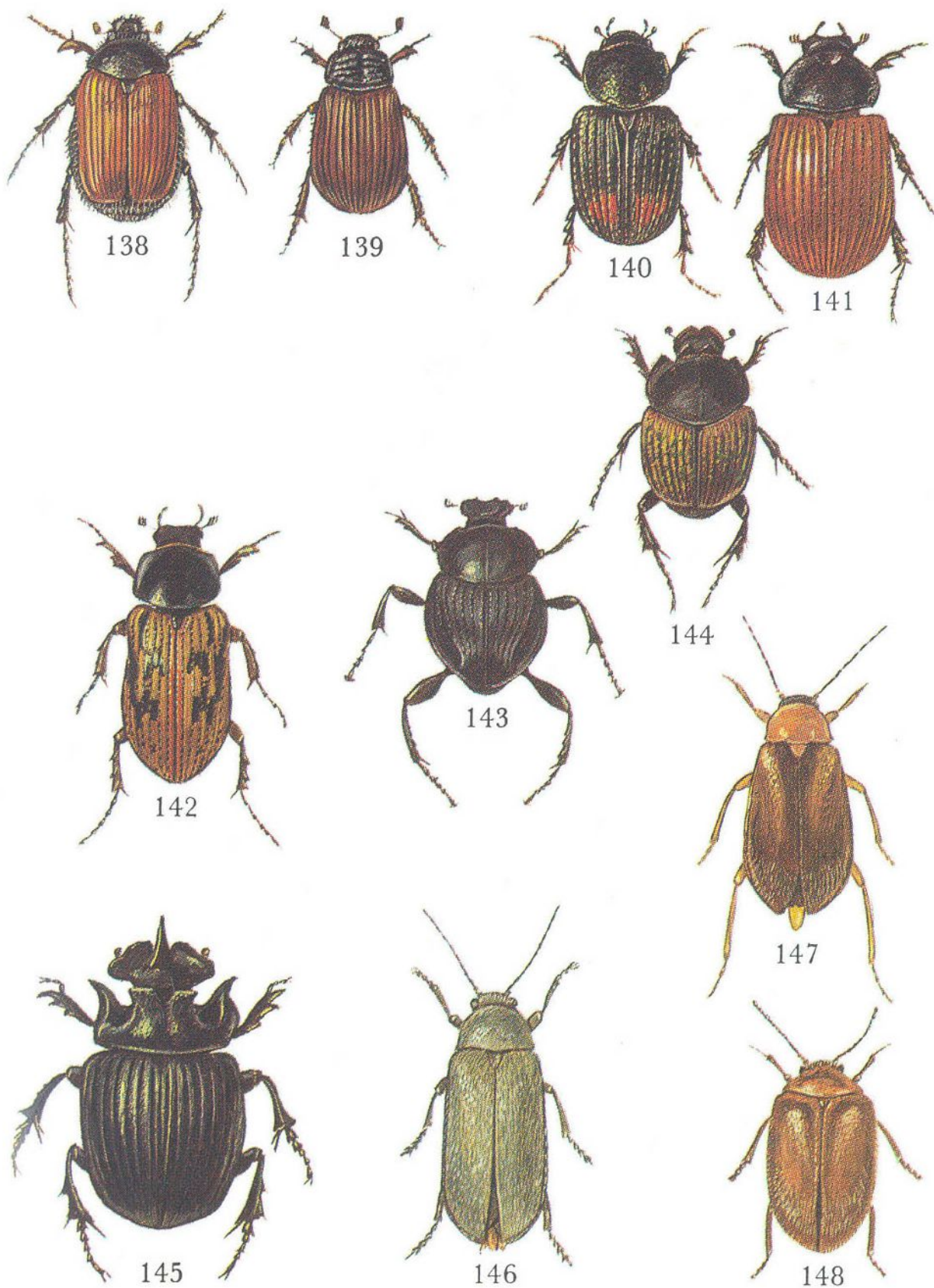


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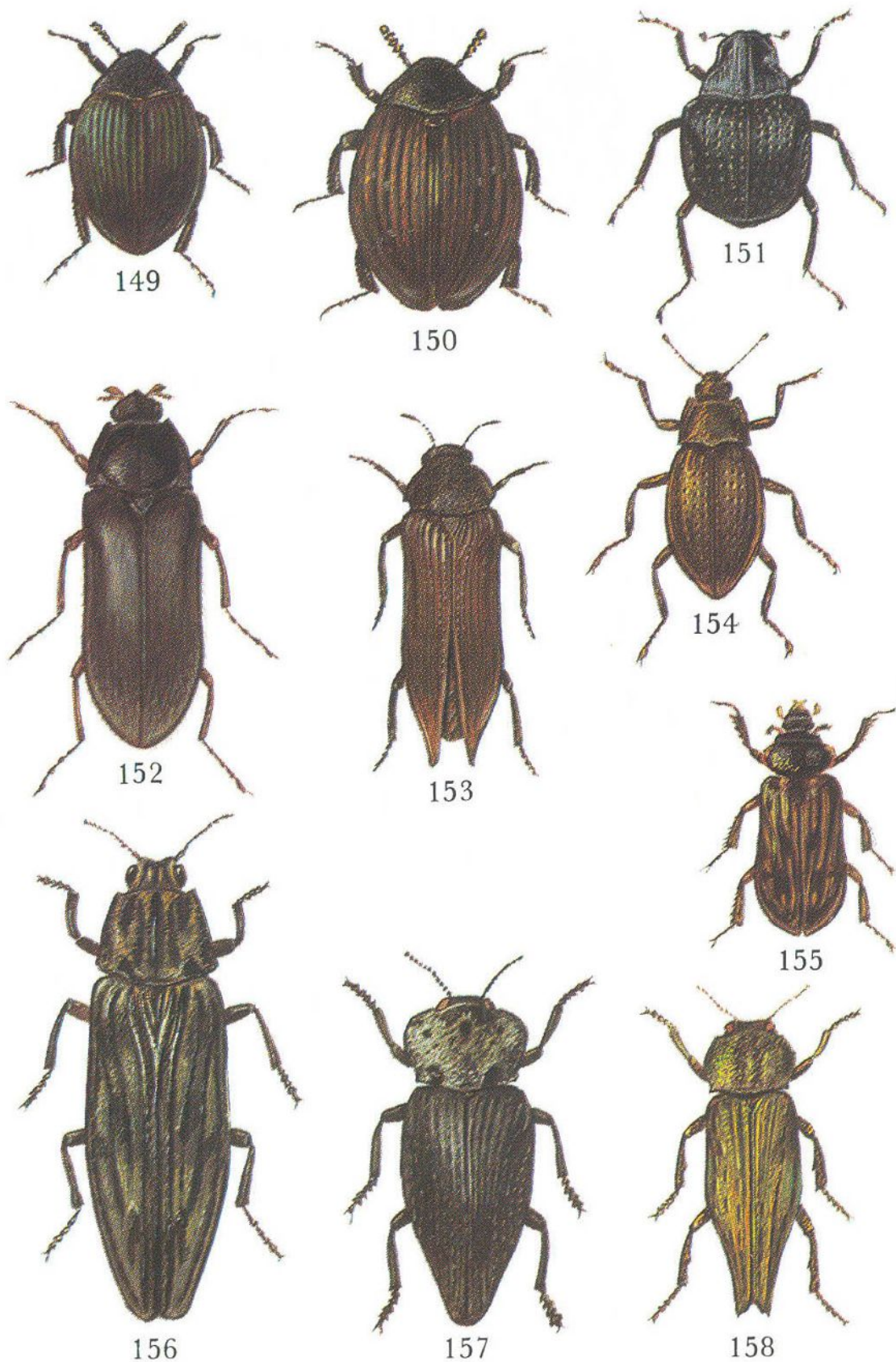


137

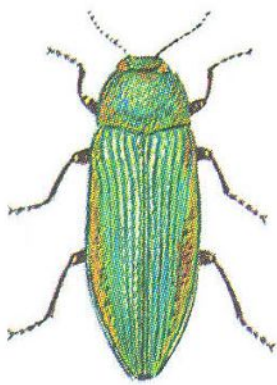
129. *Trichius fasciatus*. — 130. *Epicometis hirta*. — 131. *Oxythyrea funesta*. —
 132. *Cetonia aurata*, Rose Chafer. — 133. *Liocola marmorata*. — 134. *Potosia*
aeruginosa. — 135. *P. cuprea*. — 136. *Serica brunnea*. — 137. *Maladera*
holosericea.



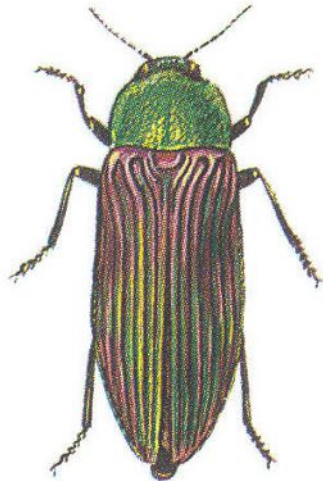
138. *Homaloplia ruricola*. — 139. *Psammobius sulcicollis*. — 140. *Aphodius haemorrhoidalis*. — 141. *A. fimetarius*. — 142. *A. inquinatus*. — 143. *Sisyphus schaefferi*. — 144. *Onthophagus vacca*. — 145. *Coprins lunaris*. — 146. *Dascillus cervinus*. — 147. *Helodes minuta*. — 148. *Cyphon variabilis*.



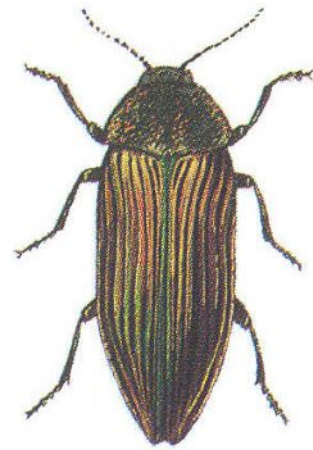
149. *Cytilus sericeus*. — 150. *Byrrhus pilula*. — 151. *Georyssus crenulatus*. —
 152. *Dryops auriculatus*. — 153. *Potamophilus acuminatus*. — 154. *Riolus*
cupreus. — 155. *Heterocerus fenestratus*. — 156. *Chalcophora mariana*. — 157.
Capnodes tenebrionis. — 158. *Dicerca alni*.



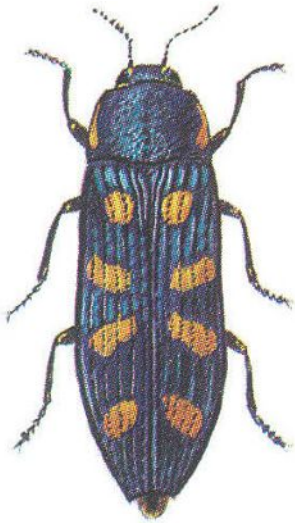
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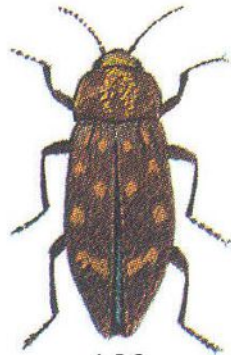
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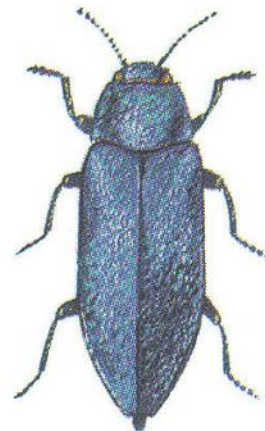
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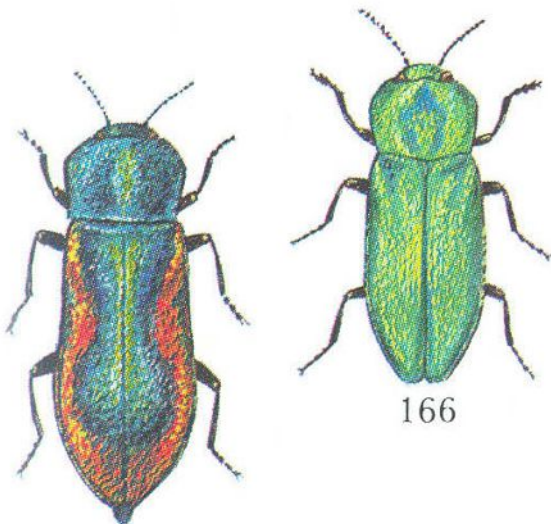
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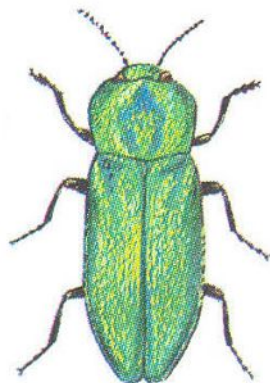
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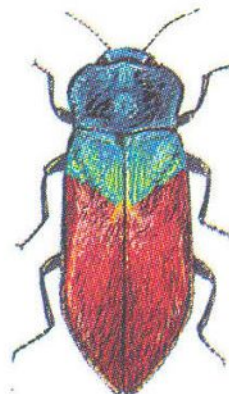
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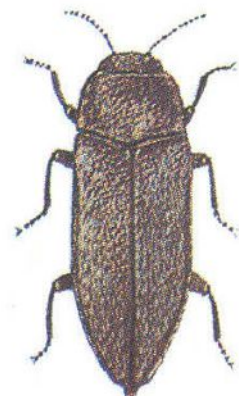
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166

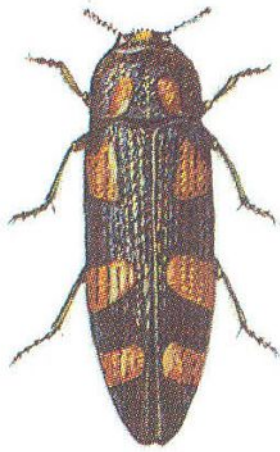


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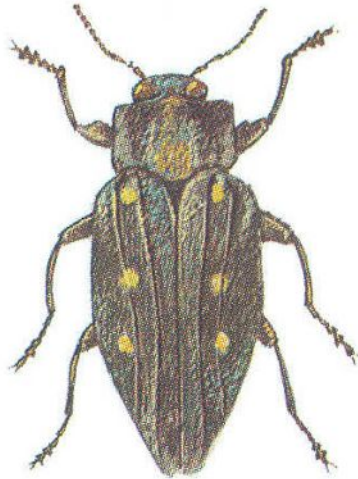


168

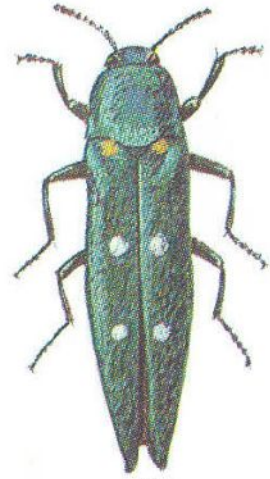
159. *Lampra rutilans*. — 160. *Eurythyrea austriaca*. — 161. *Buprestis rustica*. —
 162. *B. octoguttata*. — 163. *Melanophila picta*. — 164. *Phaenops cyanea*. —
 165. *Anthaxia candens*. — 166. *A. nitidula*. — 167. *A. salicis*. — 168. *A. morio*.



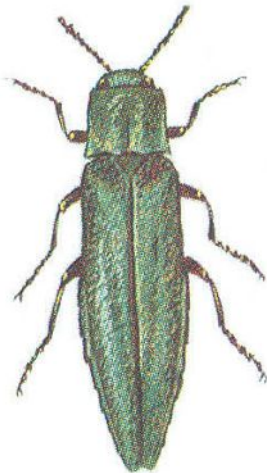
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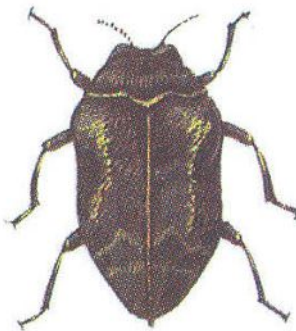
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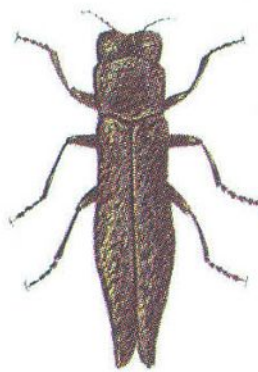
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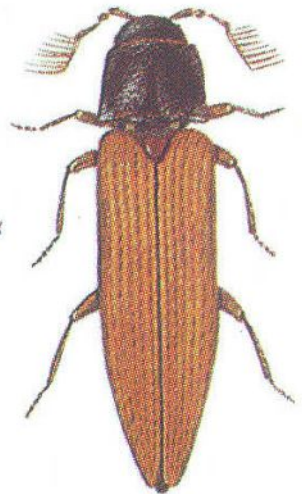
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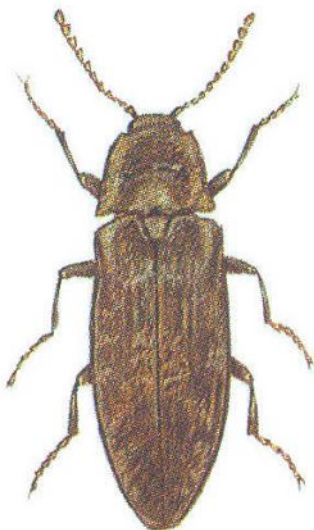
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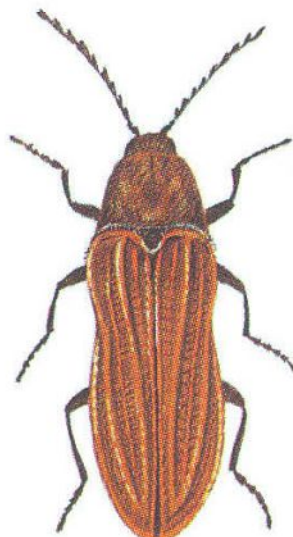
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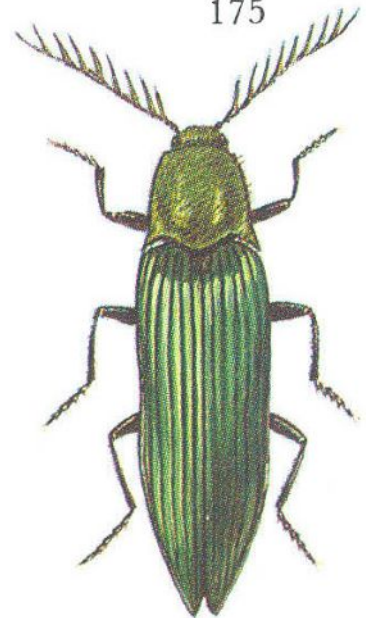
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176

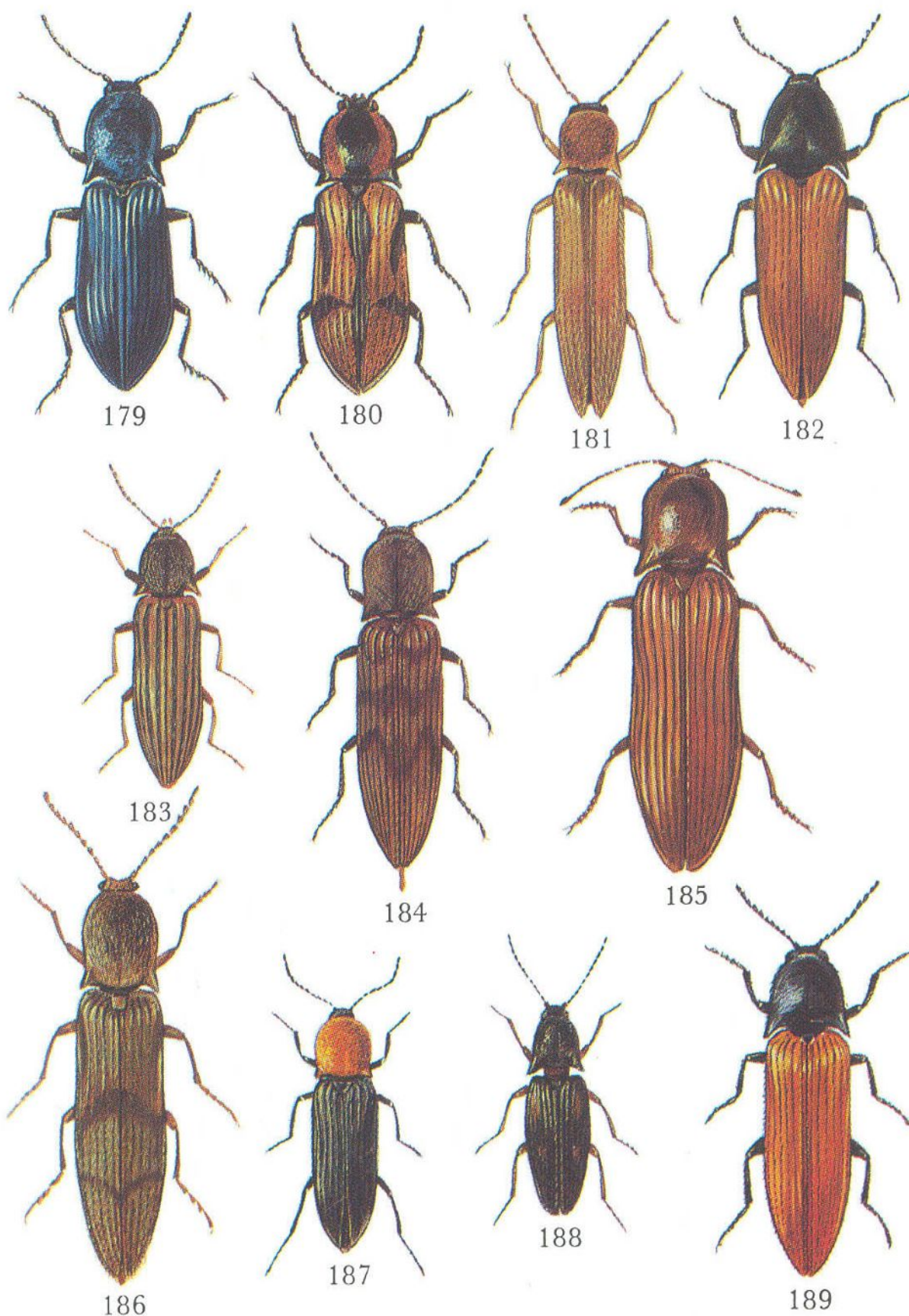


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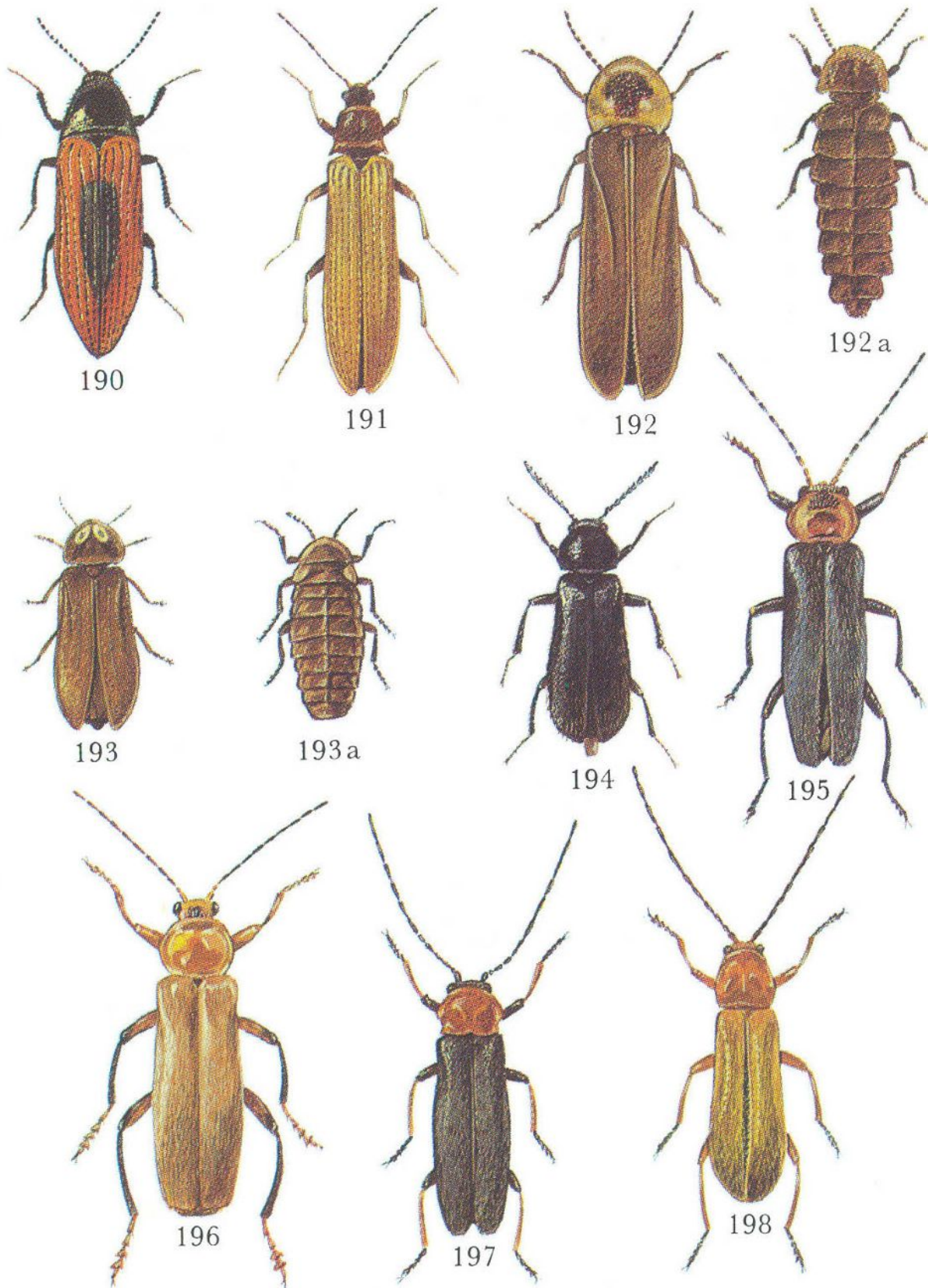


178

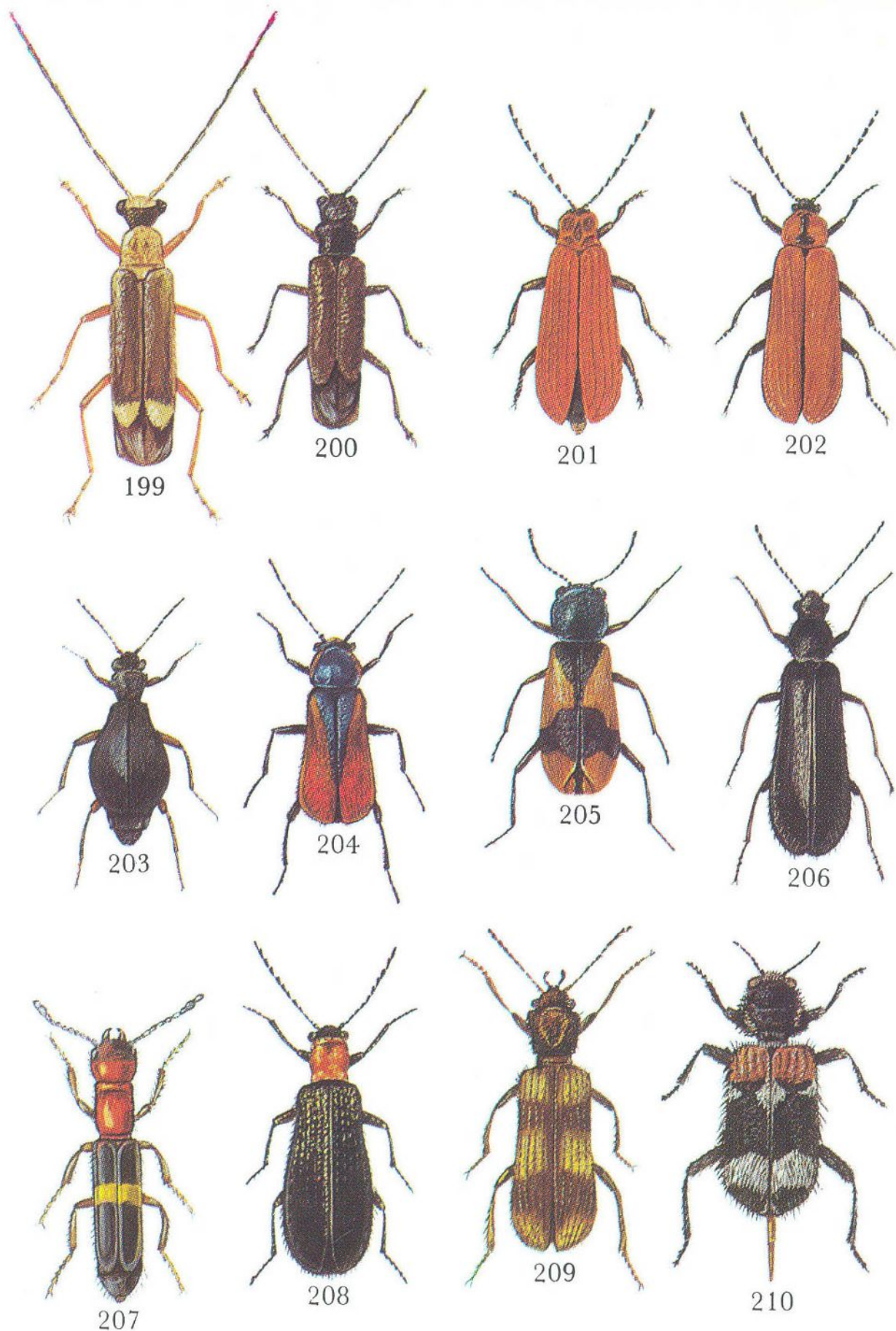
169. *Ptosima undecimmaculata*. — 170. *Chrysobothris affinis*. — 171. *Agrilus biguttatus*. — 172. *A. viridis*. — 173. *Trachys minuta*. — 174. *Cyldromorphus filum*. — 175. *Isorhipis melasoides*. — 176. *Adelocera murina*. — 177. *Corymbites purpureus*. — 178. *C. pectinicornis*.



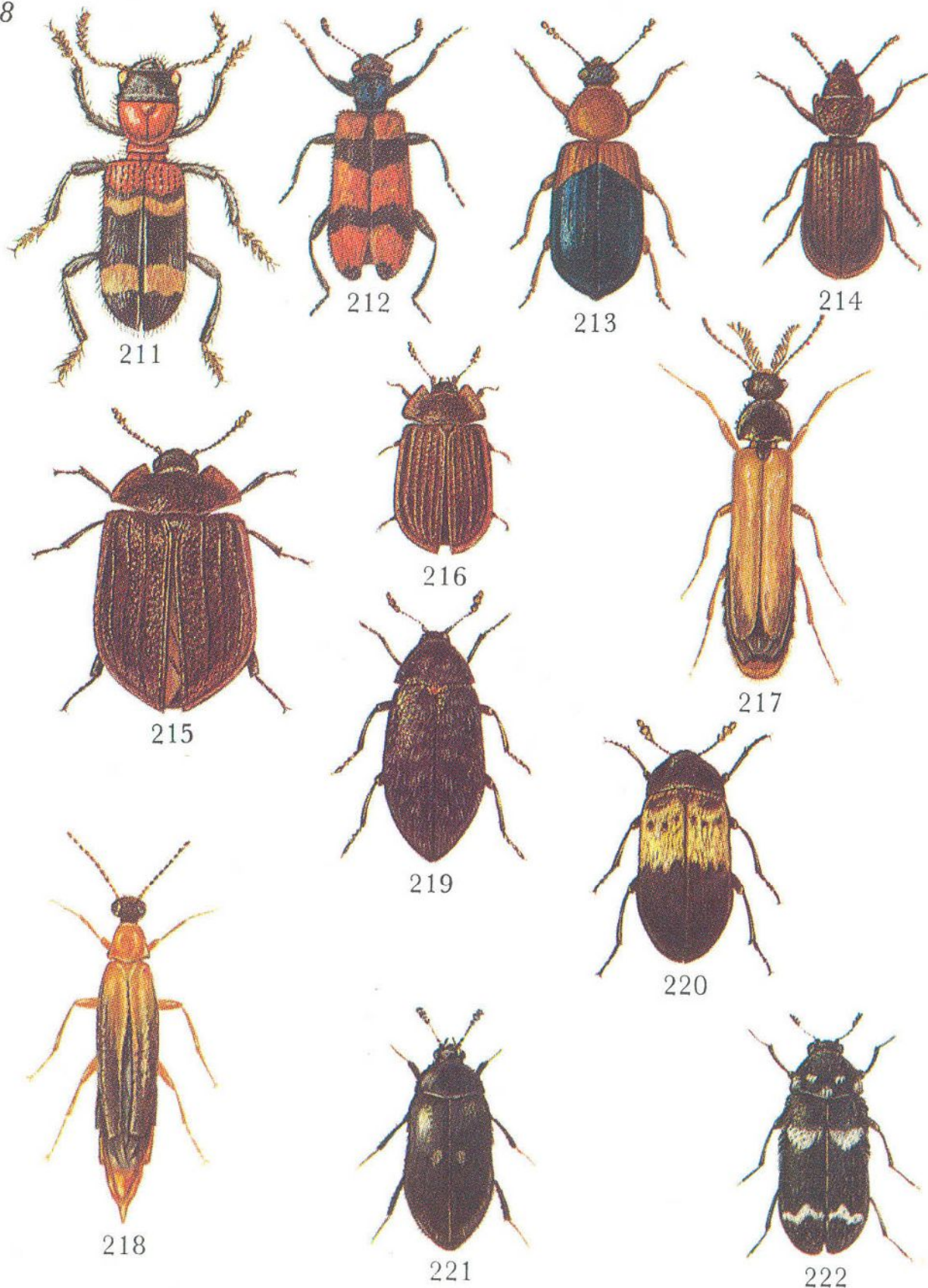
179. *Selatosomus aenus*. — 180. *S. cruciatus*. — 181. *Dalopius marginatus*. —
 182. *Ludius ferrugineus*. — 183. *Agriotes lineatus*. — 184. *Harminius undulatus*.
 — 185. *Athous rufus*. — 186. *A. villosus*. — 187. *Cardiophorus gramineus*. — 188.
Hypnoidus pulchellus. — 189. *Elater sanguineus*.



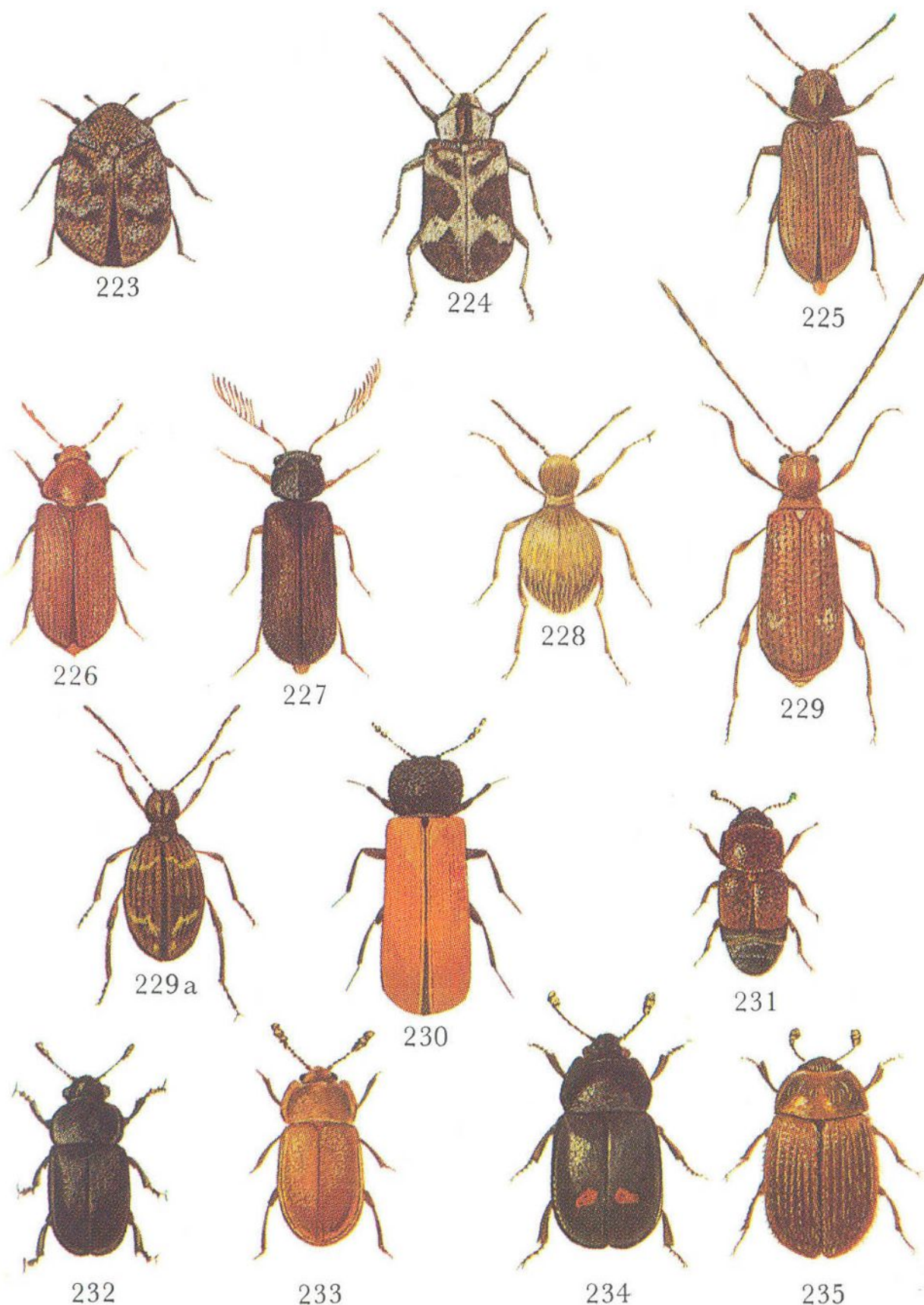
190. *Elater sanguinolentus*. — 191. *Denticollis linearis*. — 192. *Lampyris noctiluca*, Glow-worm. — 193. *Phausis splendidula*. — 194. *Drilus concolor*. — 195. *Cantharis fusca*. — 196. *C. livida*. — 197. *Silis ruficollis*. — 198. *Rhagonycha fulva*.



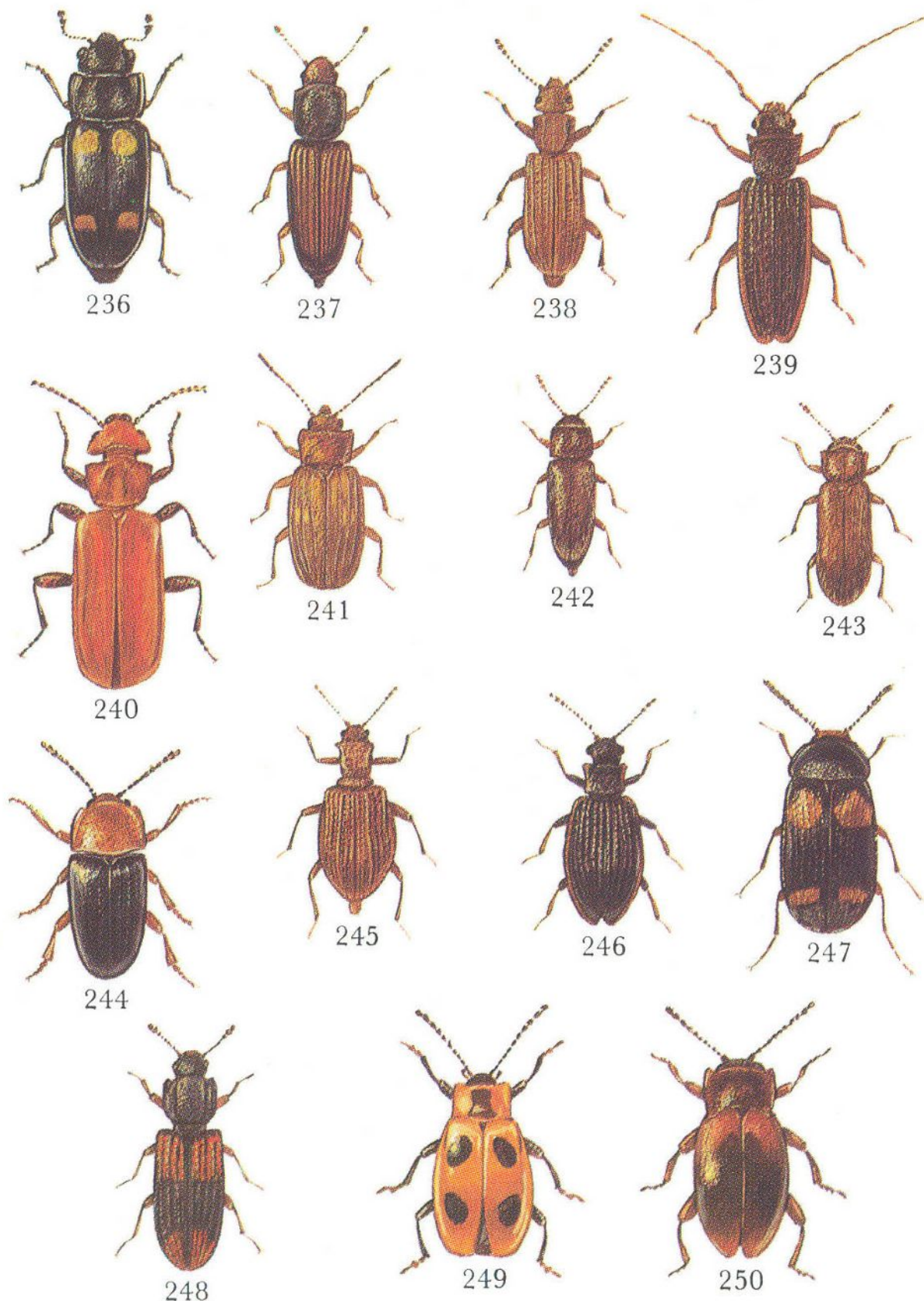
199. *Malthinus flaveolus*. – 200. *Malthodes maurus*. – 201. *Dictyopterus aurora*. – 202. *Lygistopterus sanguineus*. – 203. *Charopus flavipes*. – 204. *Malachius aeneus*. – 205. *Anthocomus bipunctatus*. – 206. *Dasytes plumbeus*. – 207. *Denops albofasciata*. – 208. *Tillus elongatus*. – 209. *Opilo domesticus*. – 210. *Pseudoclerops mutillarius*.



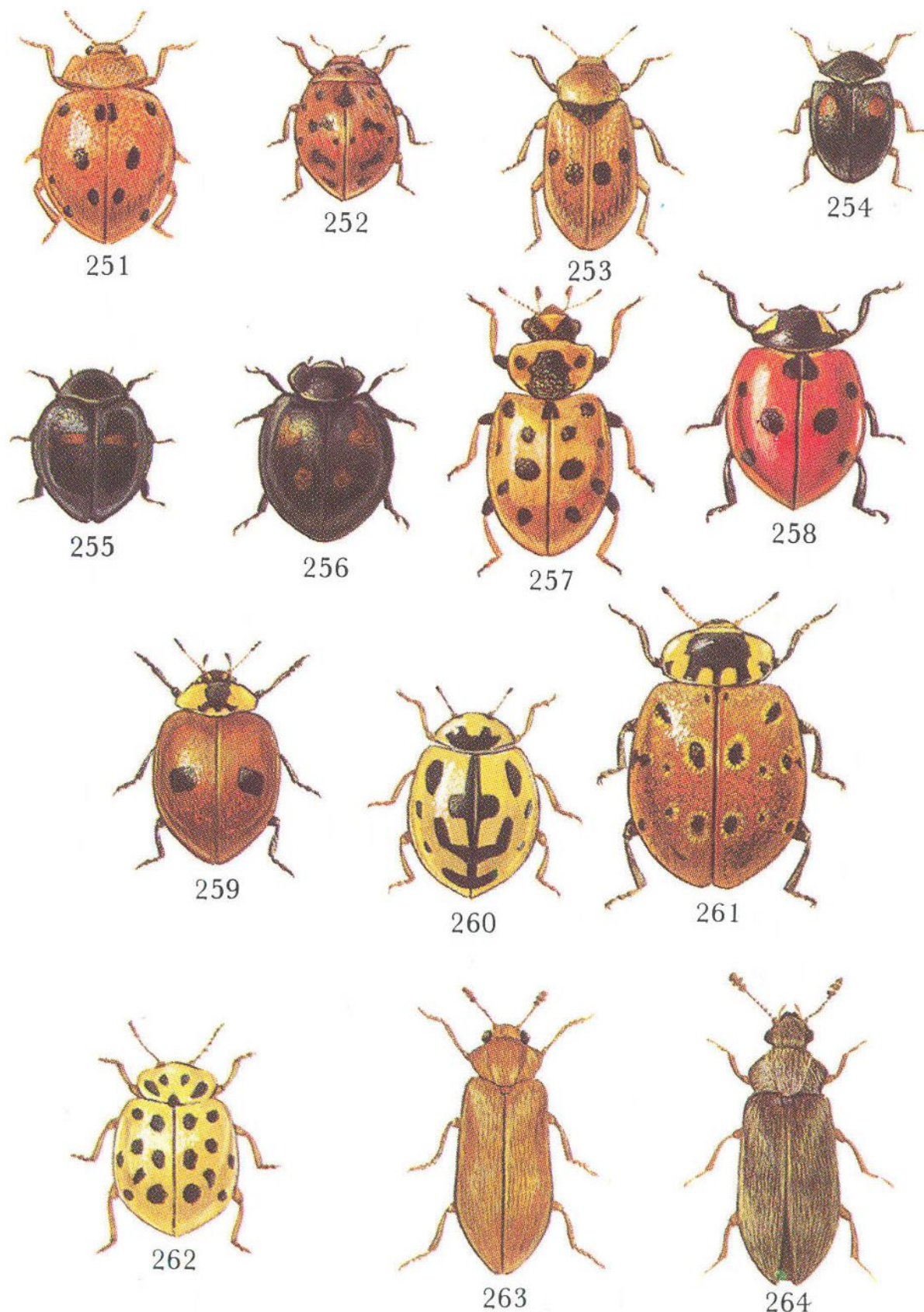
211. *Thanasimus formicarius*. — 212. *Trichodes apiarius*. — 213. *Necrobia ruficollis*, Red-breasted Copra Beetle. — 214. *Tenebroides mauritanicus*, Cadelle Beetle. — 215. *Zimioma grossum*. — 216. *Ostoma ferruginea*. — 217. *Hylecoetus dermestoides*. — 218. *Lymexylon navale*. — 219. *Dermestes murinus*. — 220. *D. lardarius*, Larder Beetle. — 221. *Attagenus pellio*. — 222. *Megatoma undata*.



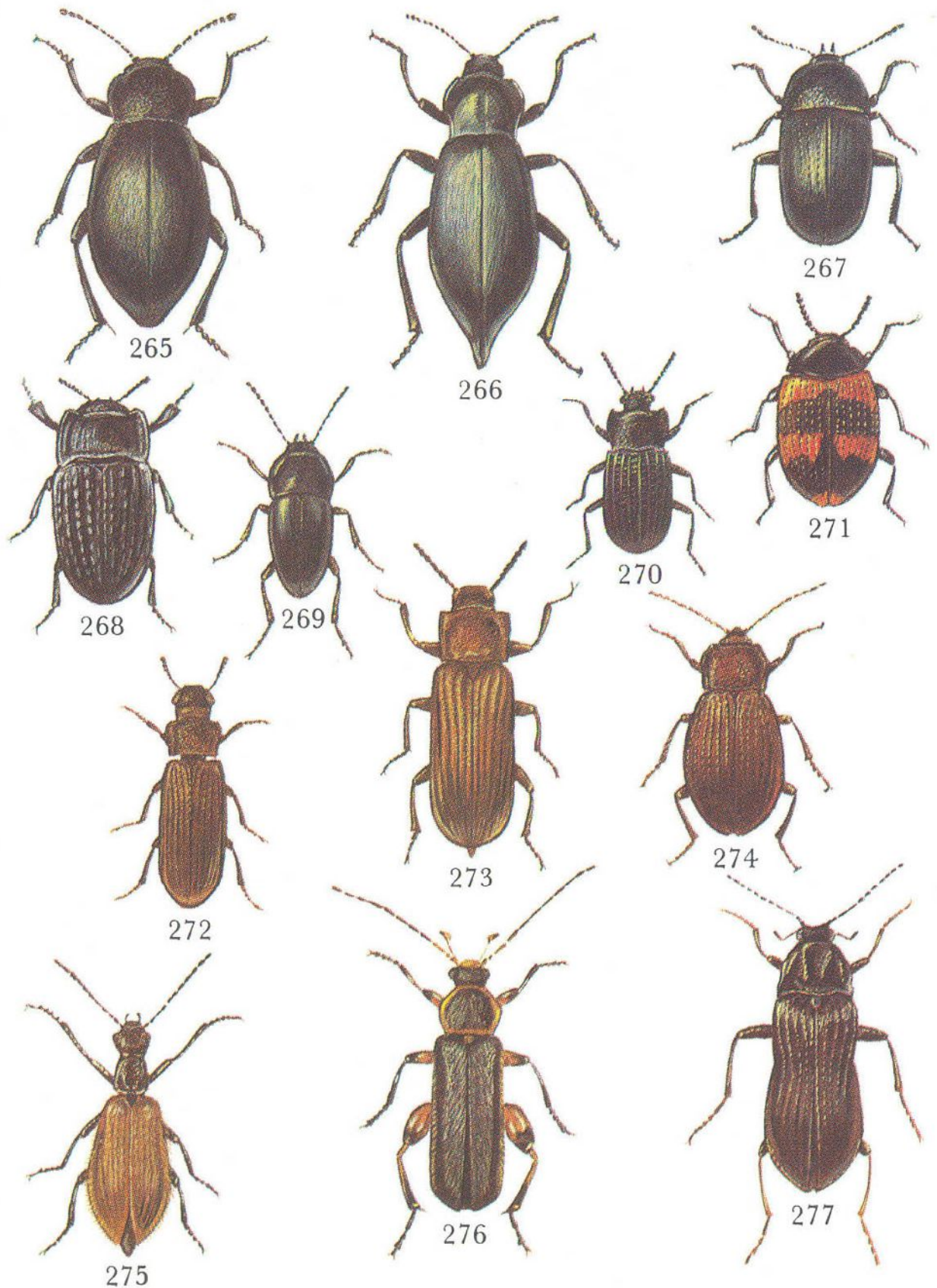
223. *Anthrenus museorum*, Museum Beetle. – 224. *Hedobia imperialis*. – 225. *Anobium punctatum*, Common Furniture Beetle. – 226. *Stegobium paniceum*, Biscuit or Drugstore Beetle. – 227. *Ptilinus pectinicornis*, Fan-bearing Wood-borer. – 228. *Niptus hololeucus*, Golden Spider Beetle. – 229. *Ptinus fur*, White-marked Spider Beetle. – 230. *Bostrichus capucinus*. – 231. *Carpophilus mutilatus*. – 232. *Meligethes aeneus*. – 233. *Epuraea depressa*. – 234. *Nitidula bipunctata*. – 235. *Pocadius ferrugineus*.



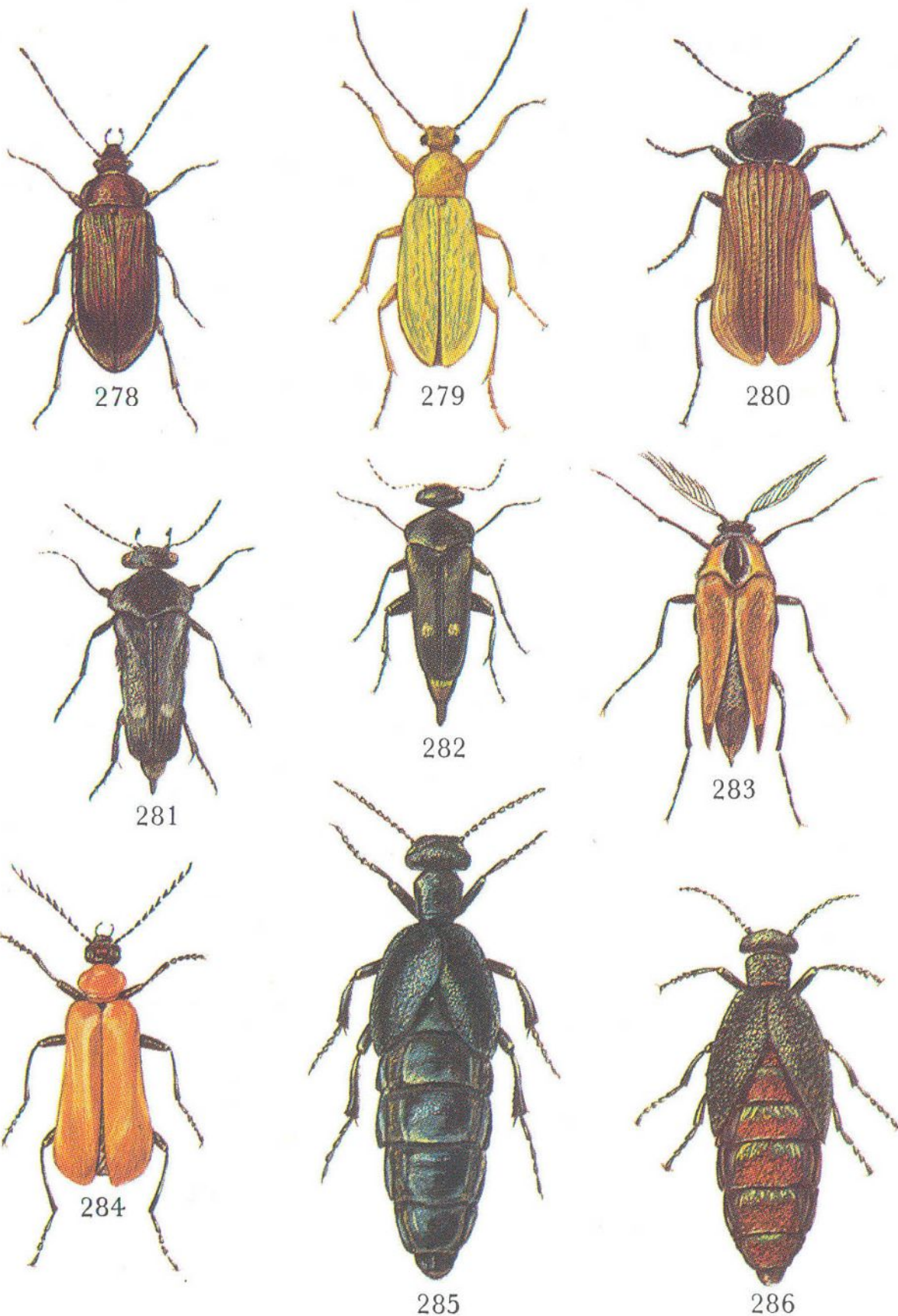
236. *Glischrochilus quadripunctatus*. — 237. *Rhizophagus parallelocollis*. — 238. *Oryzaephilus surinamensis*, Saw-toothed Grain Beetle. — 239. *Uleiota planata*. — 240. *Cucujus cinnaberinus*. — 241. *Laemophloeus bimaculatus*. — 242. *Atomaria linearis*. — 243. *Cryptophagus scanicus*. — 244. *Triplax russica*. — 245. *Lathridius augusticollis*. — 246. *Enicmus minutus*. — 247. *Mycetophagus quadripustulatus*. — 248. *Bitoma crenata*. — 249. *Endomychus coccineus*. — 250. *Lycoperdina succincta*.



251. *Epilachna chrysomelina*. – 252. *Subcoccinella vigintiquatuorpunctata*, 24-spot Ladybird. – 253. *Coccidula scutellata*. – 254. *Scymnus frontalis*. – 255. *Chilocorus bipustulatus*. – 256. *Exochomus quadripustulatus*. – 257. *Hippodamia tredecimpunctata*. – 258. *Coccinella septempunctata*, 7-spot Ladybird. – 259. *Adalia bipunctata*. – 260. *Propylea quattuordecimpunctata*. – 261. *Anatis ocellata*. – 262. *Thea vigintiduopunctata*, 22-spot Ladybird. – 262. *Byturus ochraceus*. – 264. *B. tomentosus*.



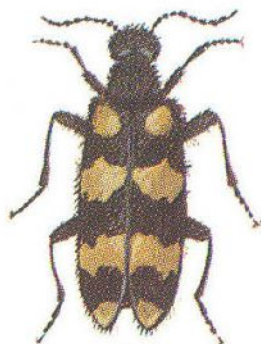
265. *Gnaptor spinimanus*. – 266. *Blaps mortisaga*. – 267. *Pedinus femoralis*. – 268. *Opatrum sabulosum*. – 269. *Crypticus quisquilius*. – 270. *Boletophagus reticulatus*. – 271. *Diaperis boleti*. – 272. *Tribolium confusum*, Flour Beetle. – 273. *Tenebrio molitor*, Mealworm Beetle. – 274. *Cylindronotus laevioctostriatus*. – 275. *Lagria hirta*. – 276. *Osphya bipunctata*. – 277. *Melandrya dubia*.



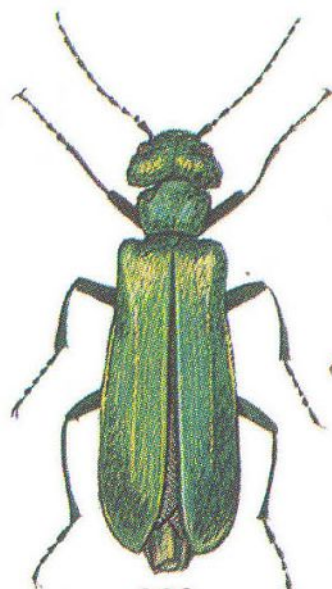
278. *Gonodera luperus*. – 279. *Cteniopus sulphureus*. – 280. *Omophlus lepturoides*.
 – 281. *Tomoxia biguttata*. – 282. *Mordella villosa*. – 283. *Metoecus paradoxus*.
 – 284. *Pyrochroa coccinea*. – 285. *Meloe violaceus*. – 286. *M. variegatus*.



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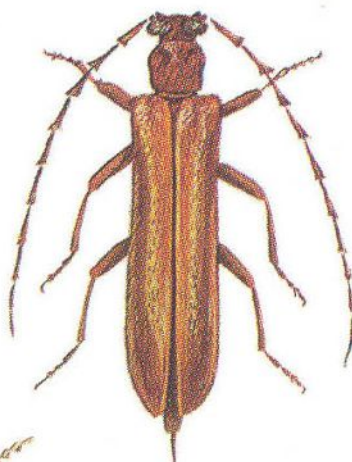
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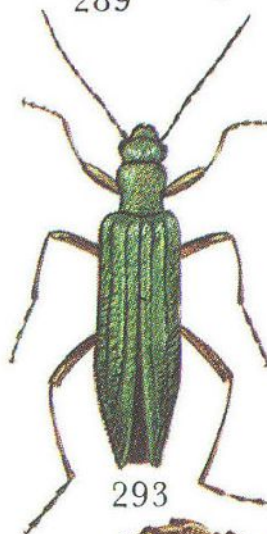
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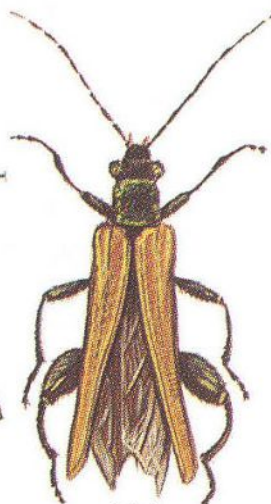
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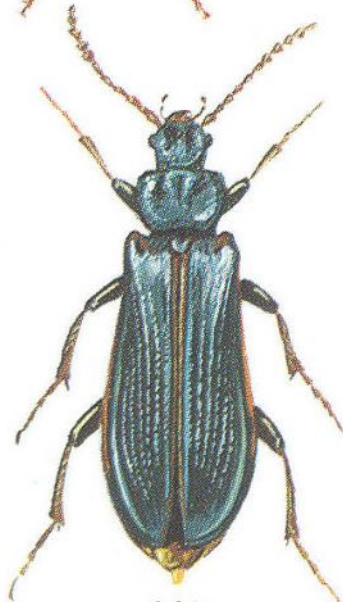
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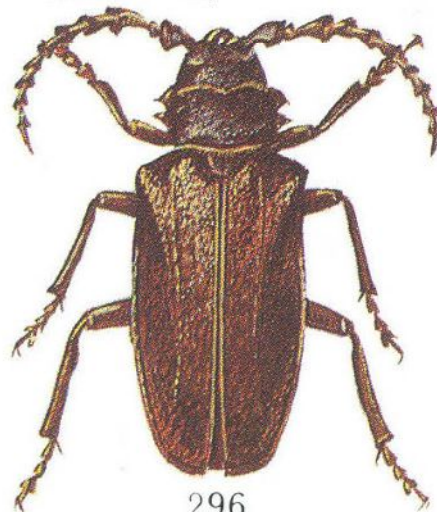
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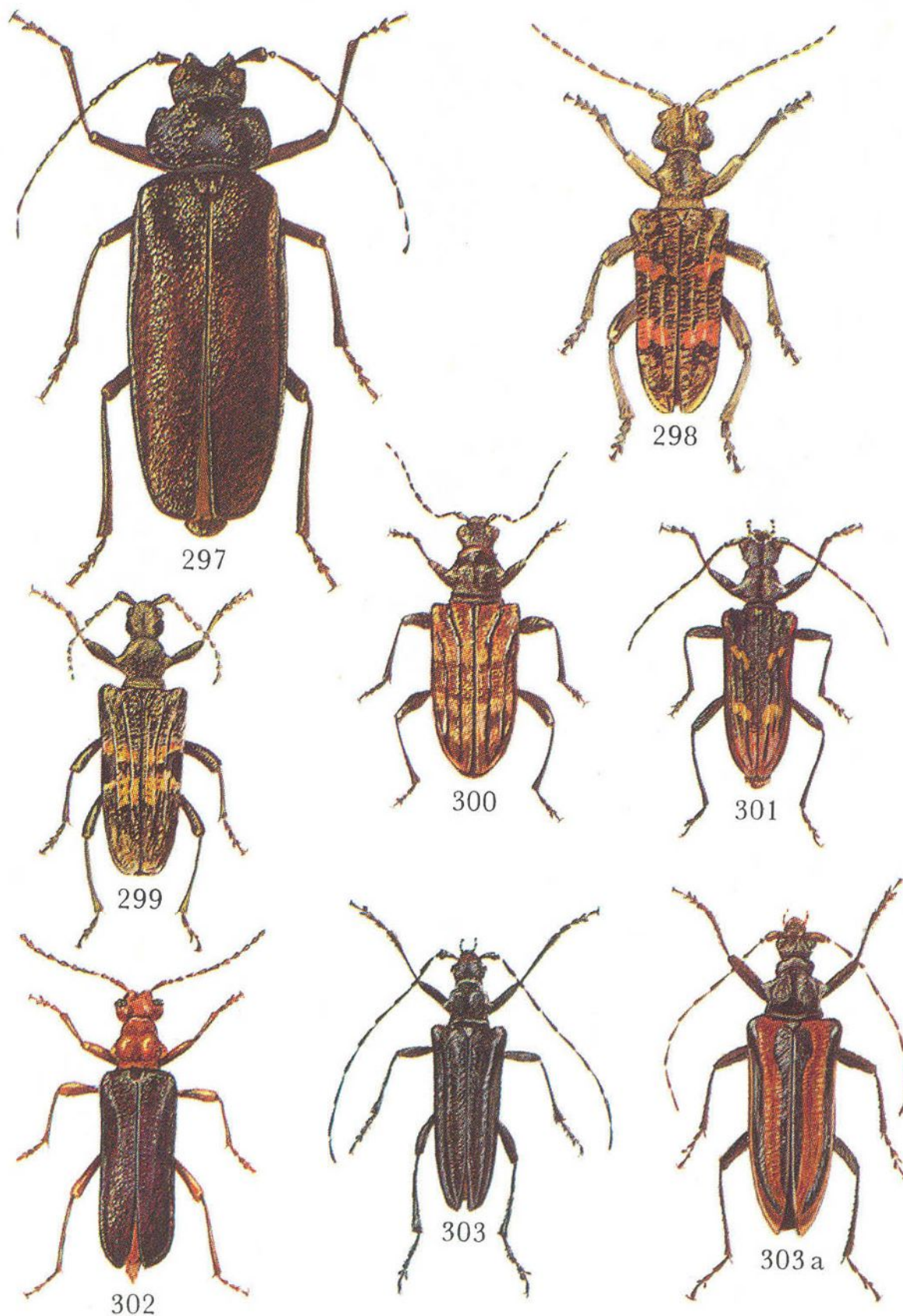


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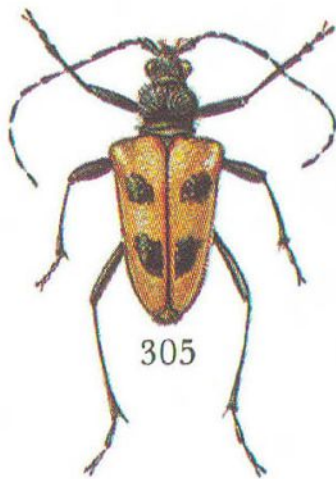
287. *Apalus bimaculatus*. — 288. *Mylabris polymorpha*. — 289. *Lytta vesicatoria*, Blister Beetle or Spanish Fly. — 290. *Notoxus monoceros*. — 291. *Anthicus floralis*. — 292. *Calopus serraticornis*. — 293. *Chrysanthia nigricornis*. — 294. *Oedemera podagrariae*. — 295. *Pytho depressus*. — 296. *Prionus coriarius*.



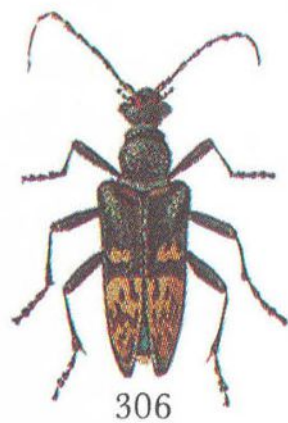
297. *Ergates faber*. — 298. *Rhagium sycophanta*. — 299. *R. mordax*. — 300. *R. inquisitor*. — 301. *R. bifasciatum*. — 302. *Rhamnusium bicolor*. — 303. *Stenocorus cursor*.



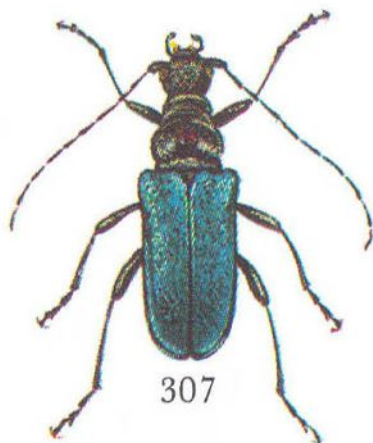
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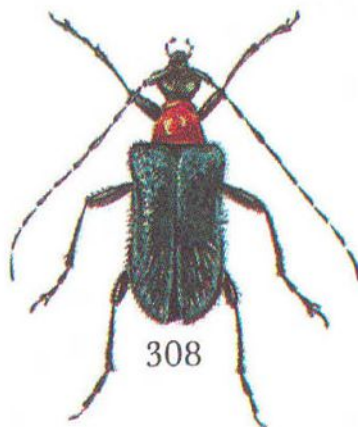
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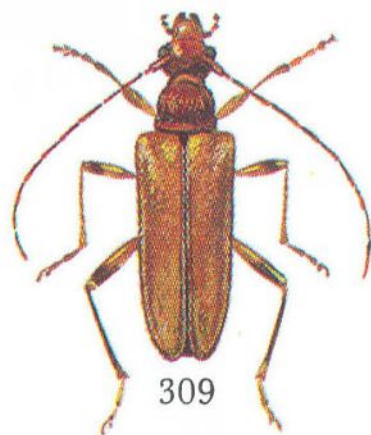
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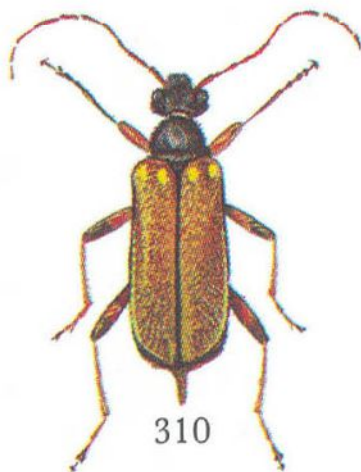
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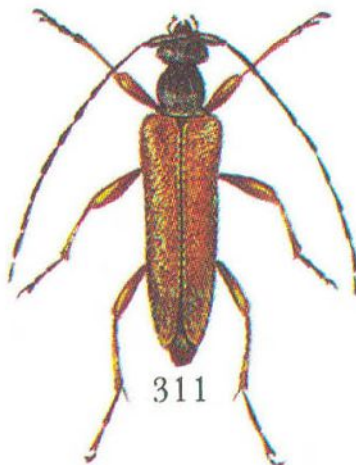
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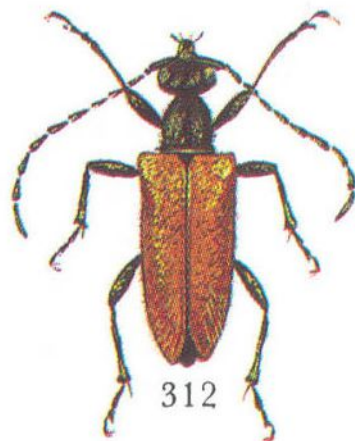
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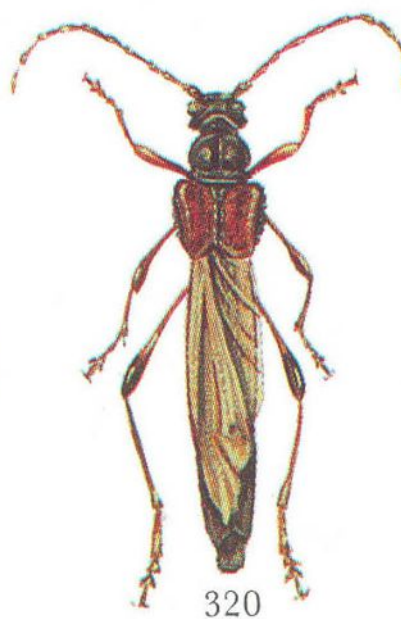
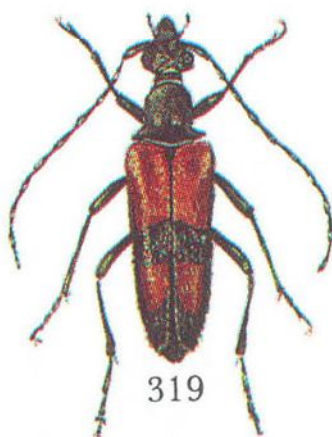
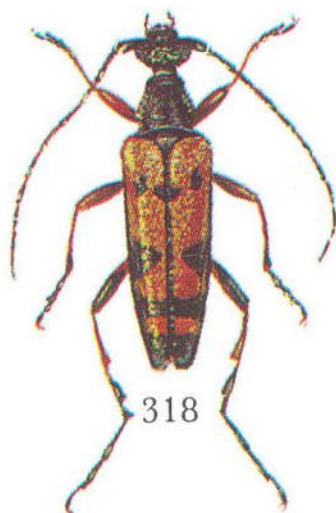
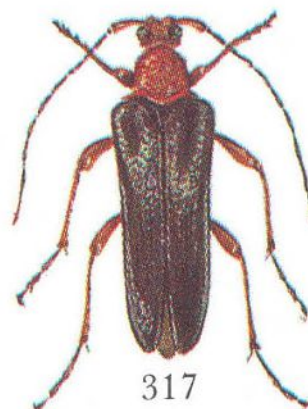
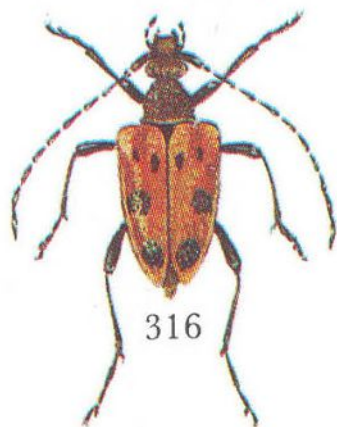
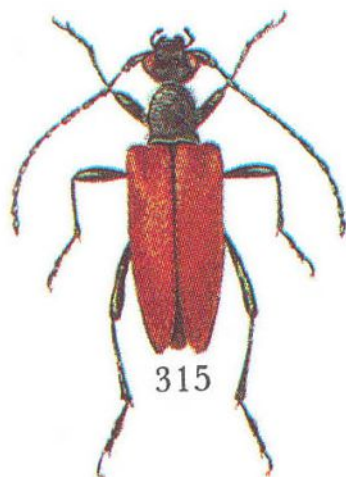
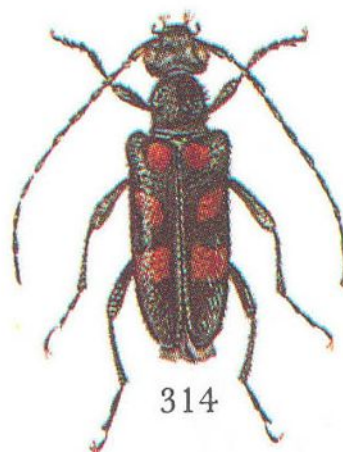
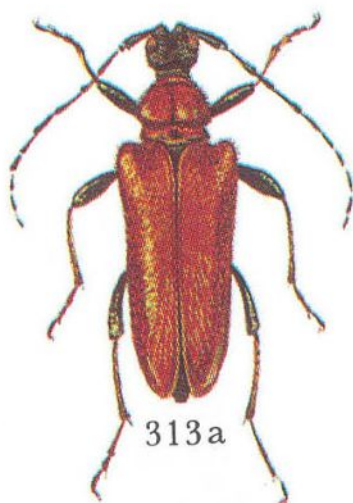
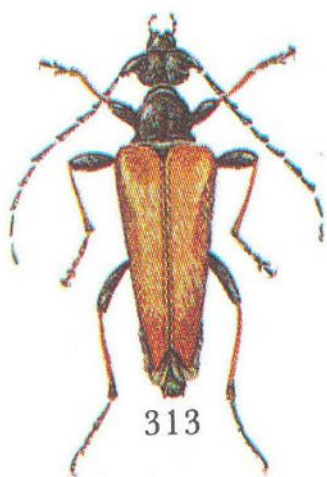


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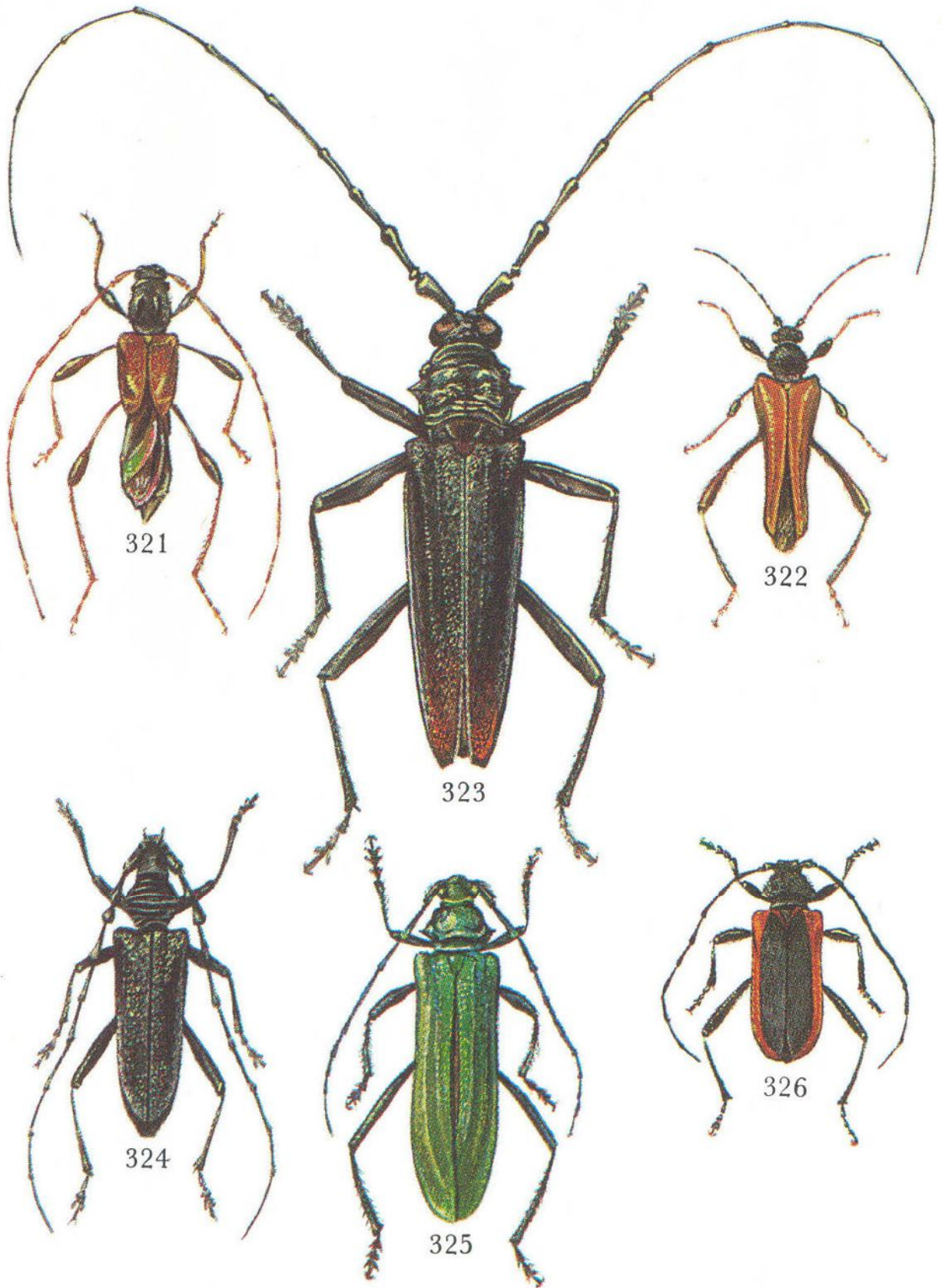


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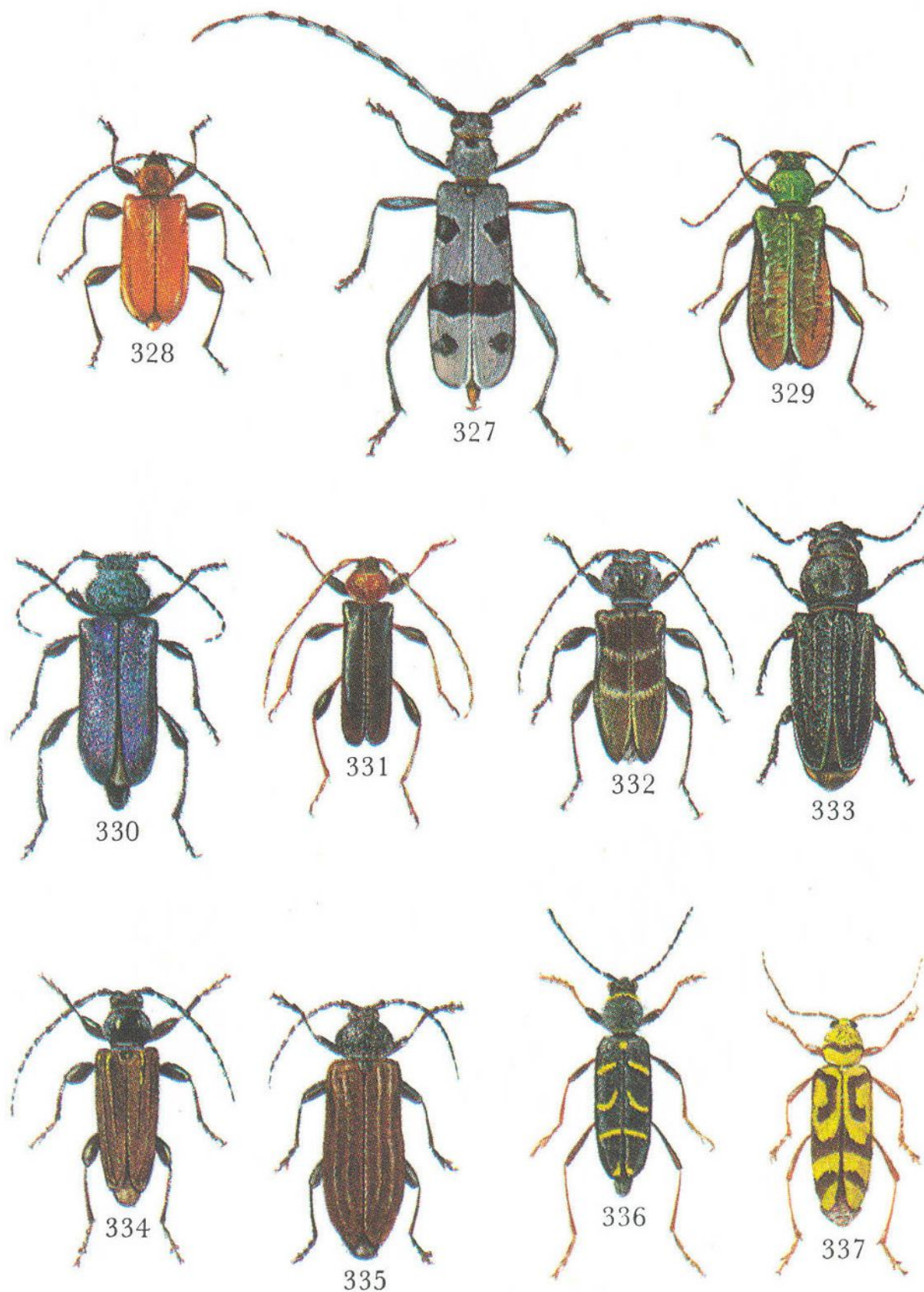
304. *Stenocorus quercus*. — 305. *Pachyta quadrimaculata*. — 306. *Evodinus clathratus*. — 307. *Gaurotes virginea*. — 308. *Acmaeops collaris*. — 309. *Pidonia lurida*. — 310. *Cortodera humeralis*. — 311. *Alosterna tabacicolor*. — 312. *Leptura livida*.



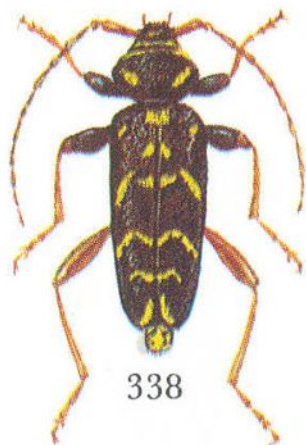
313. *Leptura rubra*. — 314. *L. sexguttata*. — 315. *L. sanguinolenta*. — 316. *Judolia cerambyciformis*. — 317. *Strangalia revestita*. — 318. *S. maculata*. — 319. *S. bifasciata*. — 320. *Necydalis major*.



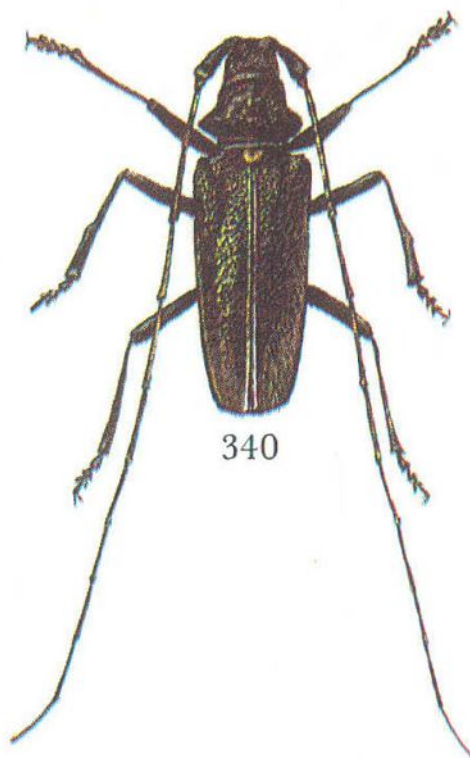
321. *Molorchus minor*. — 322. *Stenopterus rufus*. — 323. *Cerambyx cerdo*. — 324. *C. scopolii*. — 325. *Aromia moschata*. — 326. *Purpuricenus kaehlerii*.



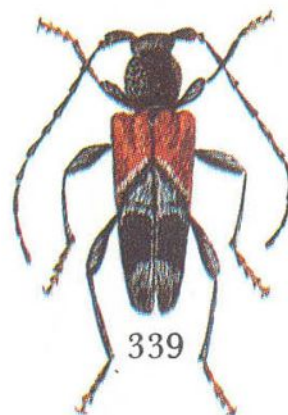
327. *Rosalia alpina*. — 328. *Pyrhodium sanguineum*. — 329. *Callidium aeneum*. —
 330. *C. violaceum*. — 331. *Phymatodes testaceus*. — 332. *Hylotrupes bajulus*,
 House Longhorn. — 333. *Spondylis buprestoides*. — 334. *Tetropium castaneum*.
 — 335. *Asemum striatum*. — 336. *Clytus arietis*. — 337. *Chlorophorus varius*.



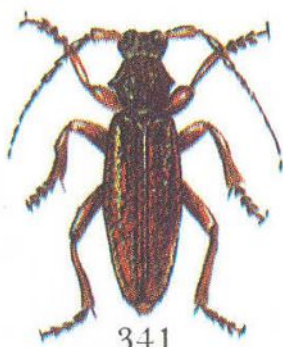
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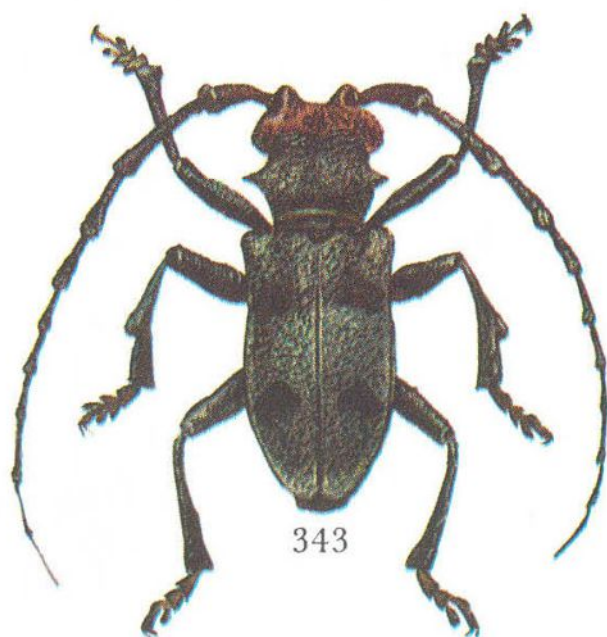
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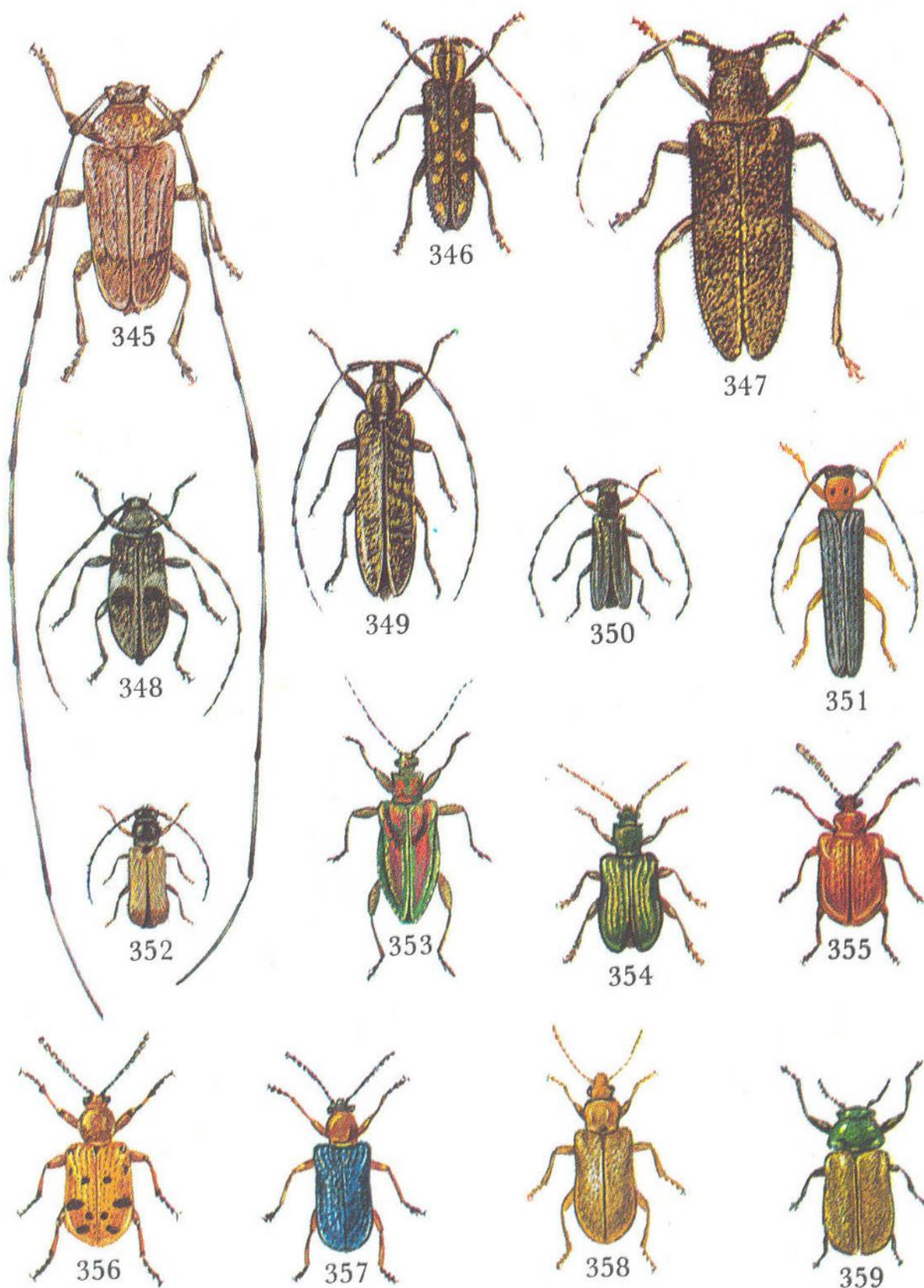


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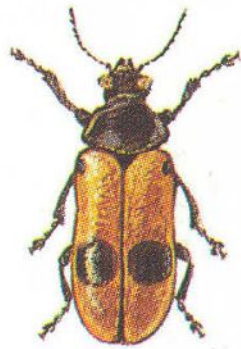


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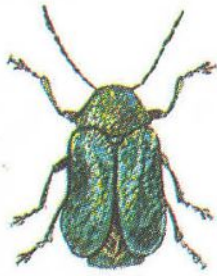
338. *Plagionotus arcuatus*. — 339. *Anaclyptus mysticus*. — 340. *Monochamus sartor*. — 341. *Dorcadion fulvum*. — 342. *D. pedestre*. — 343. *Morimus funereus*. — 344. *Lamia textor*.



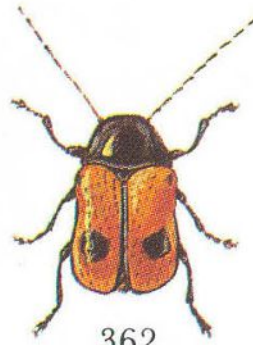
345. *Acanthocinus aedilis*. — 346. *Saperda populnea*. — 347. *S. carcharias*. — 348. *Leiopus nebulosus*. — 349. *Agapanthia villosoviridescens*. — 350. *Phytoecia cylindrica*. — 351. *Oberea oculata*. — 352. *Tetrops praeusta*. — 353. *Donacia aquatica*. — 354. *Plateumaris consimilis*. — 355. *Liliocerus lilii*. — 356. *Crioceris duodecimpunctata*. — 357. *Lema melanopa*. — 358. *Orsodacne cerasi*. — 359. *Labidostomis longimana*.



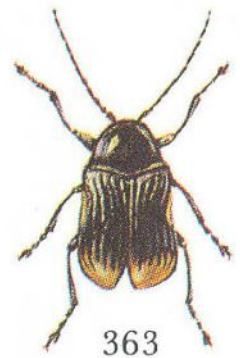
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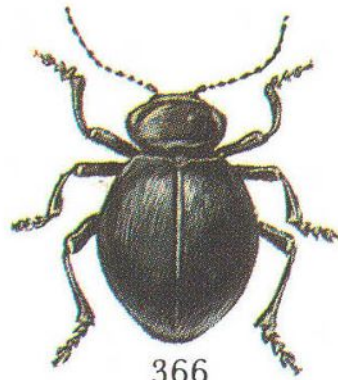
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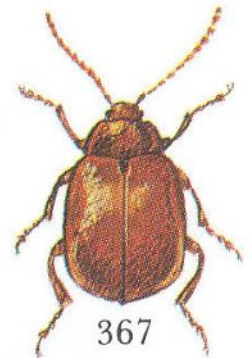
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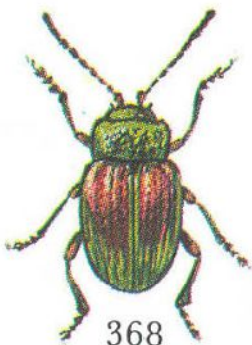
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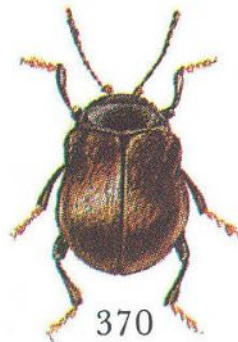
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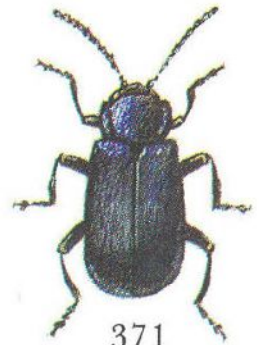
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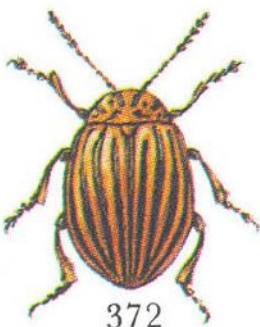
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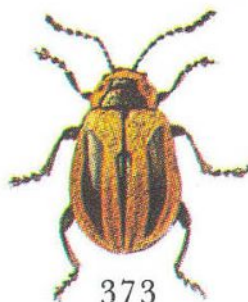
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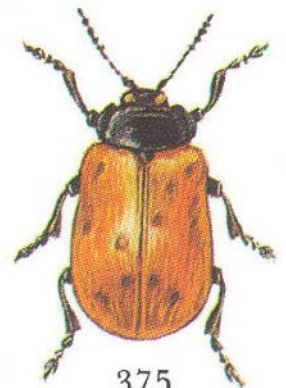
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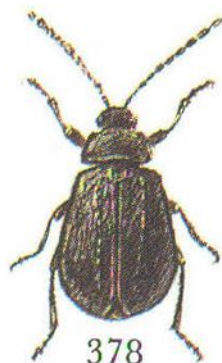
360. *Clytra laeviuscula*. — 361. *Cryptocephalus sericeus*. — 362. *C. bipunctatus*. — 363. *C. moraei*. — 364. *Adoxus obscurus*. — 365. *Chrysochus asclepiadeus*. — 366. *Timarcha tenebricosa*, Bloody-nosed Beetle. — 367. *Chrysolina staphylea*. — 368. *C. fastuosa*. — 369. *C. sanguinolenta*. — 370. *C. violacea*. — 371. *Chrysochloa cacaliae*. — 372. *Leptinotarsa decemlineata*, Colorado Beetle. — 373. *Entomoscelis adonidis*. — 374. *Chrysomela vigintipunctata*. — 375. *C. populi*.



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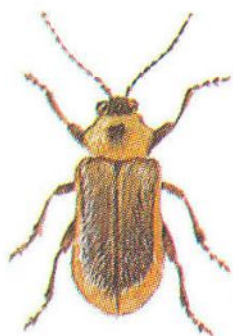
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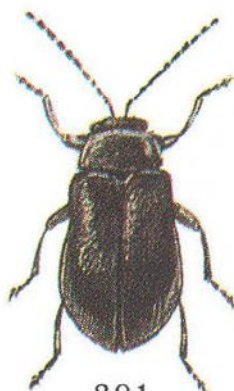
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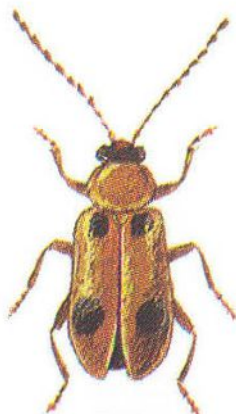
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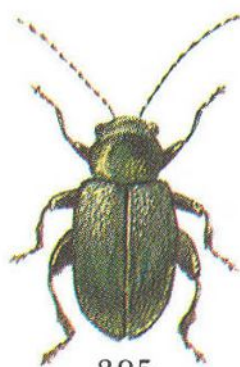
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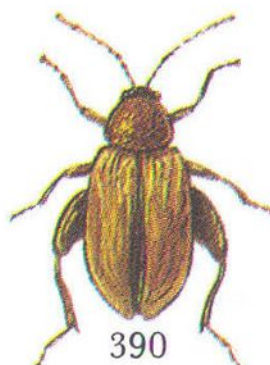
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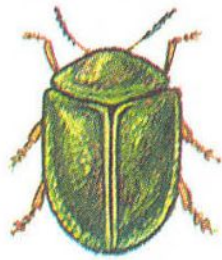


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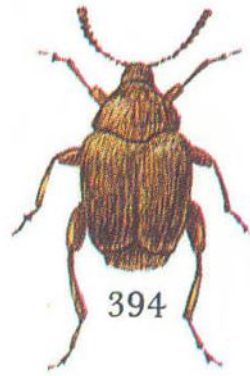
376. *Phytodecta viminalis*. – 377. *Prasocuris phellandrii*. – 378. *Galeruca tanacetii*. – 379. *Lochmaea capreae*. – 380. *Galerucella lineola*. – 381. *Agelastica alni*. – 382. *Phyllobrotica quadrimaculata*. – 383. *Luperus flavipes*. – 384. *Crepidodera ferruginea*. – 385. *Chaetocnema aridula*. – 386. *Haltica oleracea*. – 387. *Phyllotreta undulata*, Lesser striped Flea Beetle. – 388. *Aphthona euphorbiae*. – 389. *Longitarsus pratensis*. – 390. *Psylliodes affinis*, Potato Flea Beetle. – 391. *Hispella atra*.



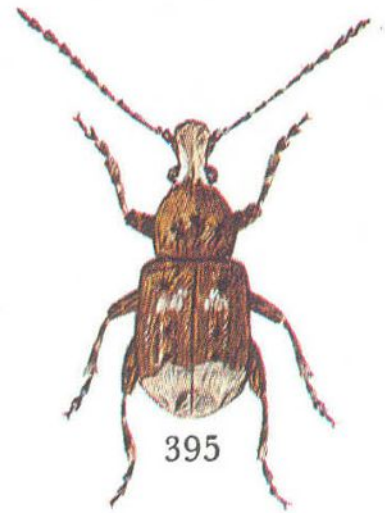
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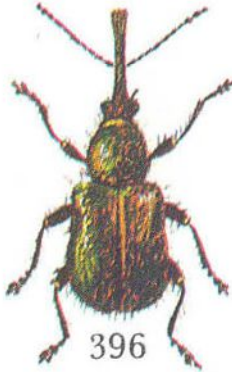
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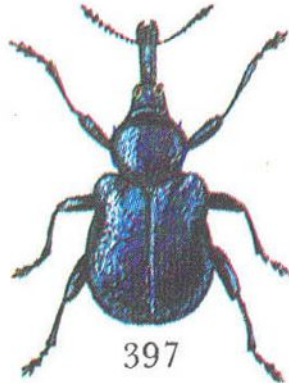
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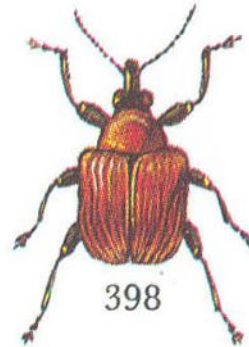
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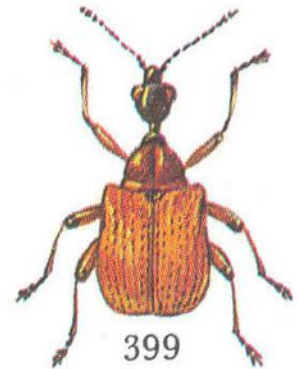
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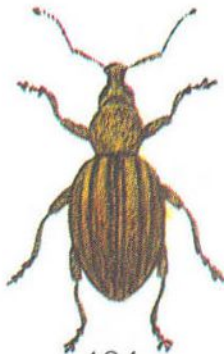
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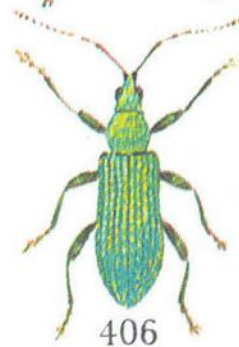
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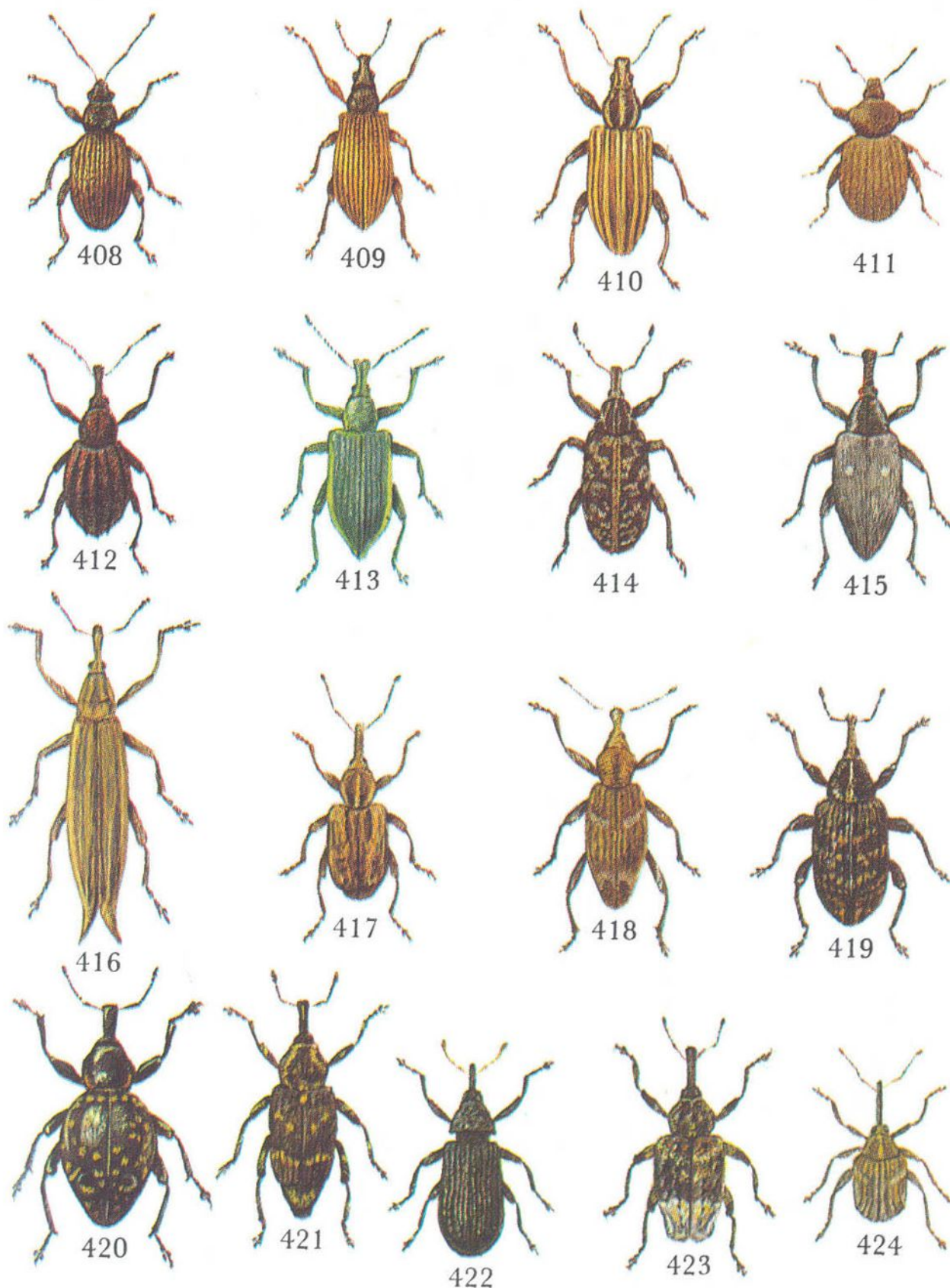


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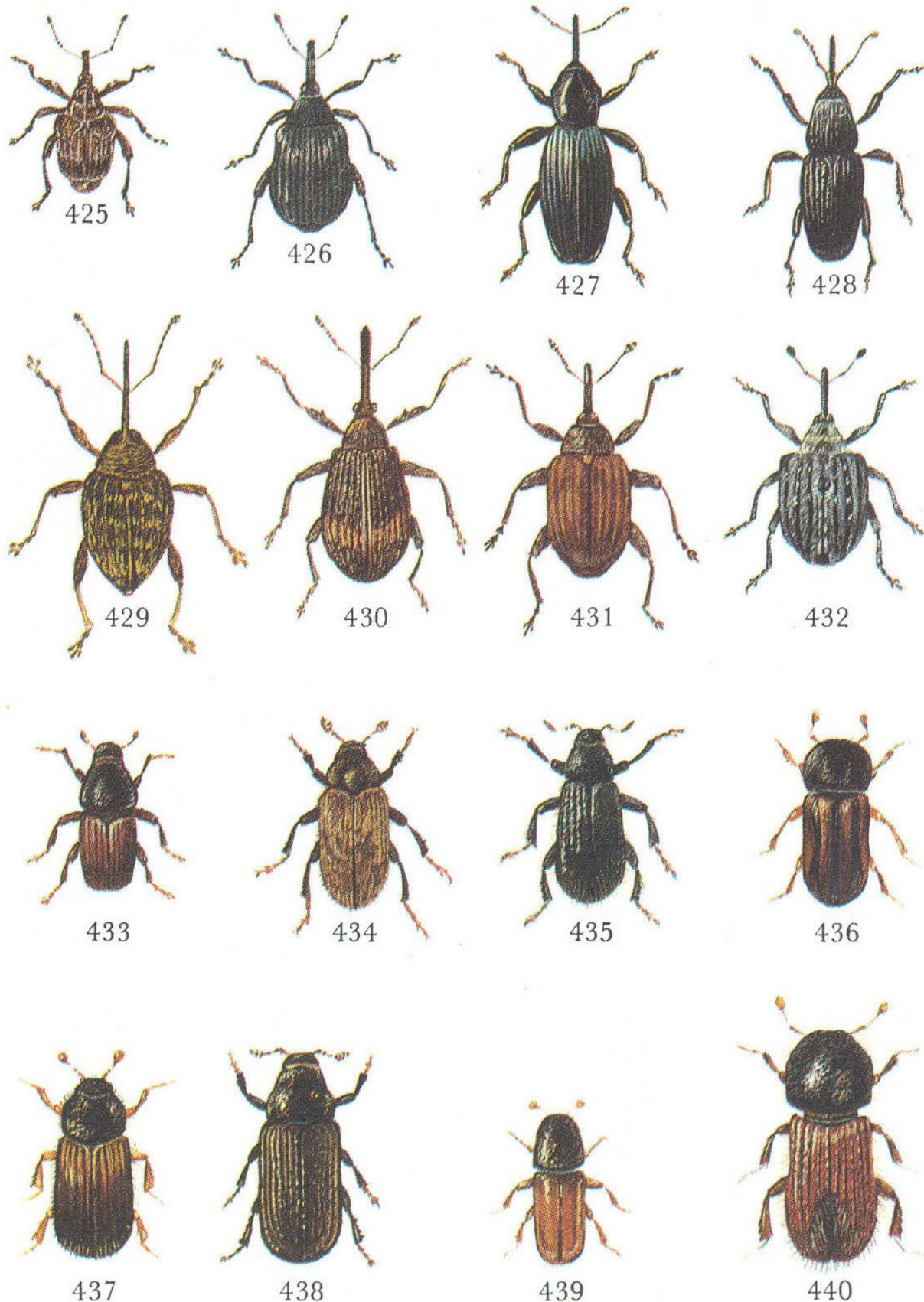


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392. *Cassida viridis*. — 393. *Bruchus pisorum*. — 394. *Acanthoscelides obsoletus*, Common Bean Weevil. — 395. *Platystomos albinus*. — 396. *Rhynchites bacchus*. — 397. *Byctiscus betulae*. — 398. *Attelabus nitens*. — 399. *Apoderus coryli*. — 400. *Apion virens*. — 401. *A. apricans*. — 402. *A. frumentarium*. — 403. *A. cracca*. — 404. *Otiorrhynchus ligustici*. — 405. *O. niger*. — 406. *Phyllobius argentatus*. — 407. *Sciaphilus asperatus*.



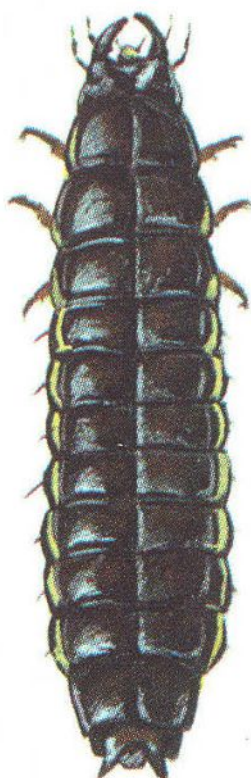
408. *Brachyderes incanus*. — 409. *Polydrusus mollis*. — 410. *Sitona lineatus*. — 411. *Trachyploeus spinimanus*. — 412. *Tropiphorus carinatus*. — 413. *Chlorophanus viridis*. — 414. *Cyphocleonus tigrinus*. — 415. *Lepyrus palustris*. — 416. *Lixus paraplecticus*. — 417. *Phytonomus posticus*. — 418. *Alophos triguttatus*. — 419. *Hylobius abietis*, Pine Weevil. — 420. *Liparus glabrirostris*. — 421. *Pissodes pini*. — 422. *Magdalis ruficornis*. — 423. *Cryptorhynchidius lapathi*. — 424. *Ceuthorhynchidius troglodytes*.



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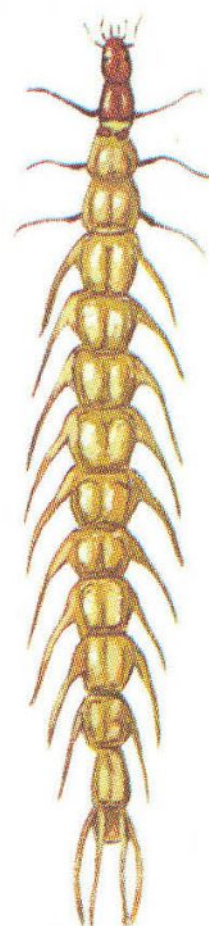
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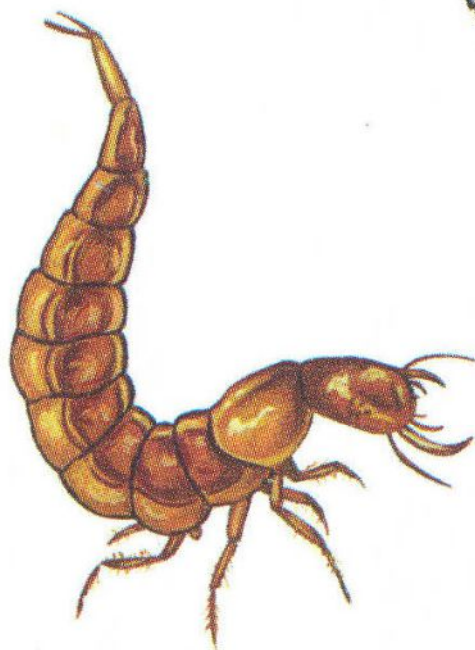
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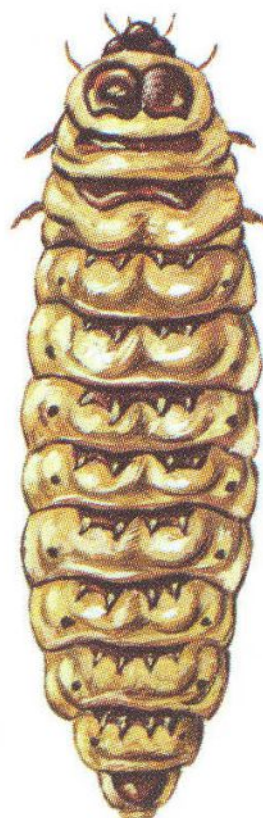
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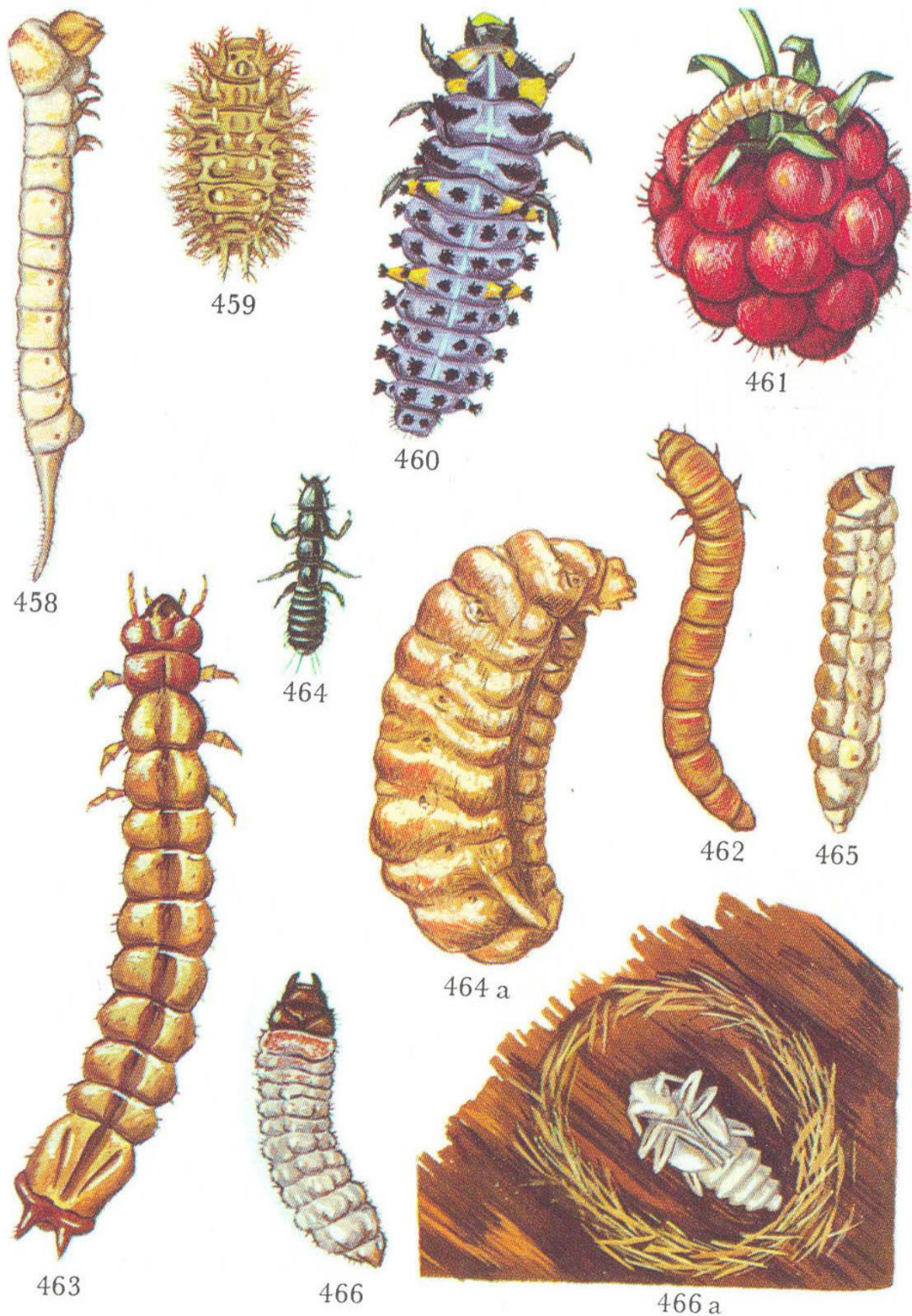


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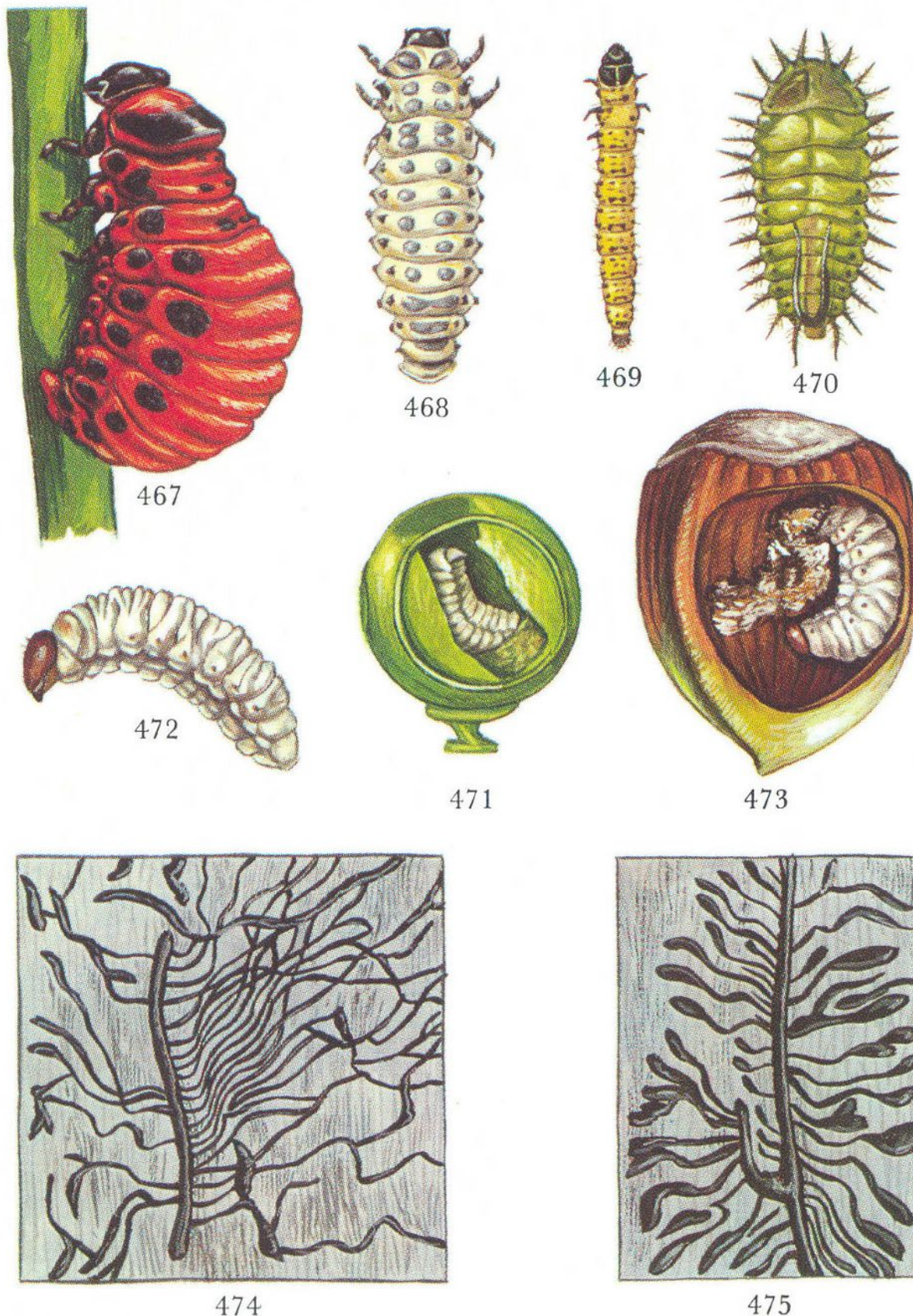
441. *Cicindela hybrida*. - 442. *Carabus nemoralis*. - 443. *Zabrus tenebroides*. -
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467. *Leptinotarsa decemlineata*. — 468. *Chrysomela populi*. — 469. *Phyllotreta nemorum*, Turnip Flea Beetle. — 470. *Cassida rubiginosa*. — 471. *Bruchus pisorum*, in a pea. — 472. *Hylobius abietis*. — 473. *Curculio nucum*, in a hazelnut. — 474. *Myelophilus piniperda*, larva tunnel and galleries. — 475. *Ips typographus*, larva tunnel and galleries.

DESCRIPTIONS OF THE BEETLES

CICINDELIDAE (Tiger Beetles)

This family, the tiger beetles, contains medium-sized beetles, characterized by their often iridescent colours, particularly on the underside, by the long thin antennae, slender legs and protruding eyes. The mouthparts are very powerful. There are about 2,000 species throughout the world, but only four in Britain. Tiger beetles are found mainly in dry, sandy and warm habitats from May to September. They run and fly rapidly. The larvae are predatory and live in vertical burrows near the soil surface. They remain close to the entrance of the burrow and seize with lightning speed any other insects that come near.

1 *Cicindela campestris*

Green Tiger Beetle

Characteristics: L. 12–16 mm. Thorax and elytra iridescent green, underside iridescent violet or bluish. Elytra with a very variable pattern of yellowish-white spots. Legs copper-red, tarsus green.

Distribution: Throughout Europe, northwards to northernmost Scandinavia. Common in Britain.

Habitat and habits: Found in sandy places and on woodland paths. Seen mainly in May–July.

2 *Cicindela hybrida*

Characteristics: L. 12–16 mm. Upperside copper-brown, sometimes rather greenish. Edge of thorax purplish-red, underside iridescent green. Elytra with three

yellowish markings. The similar species *C. maritima* is found particularly near the coast.

Distribution: Throughout Europe, northwards to southern Scandinavia. Local in England.

Habitat and habits: Rather common but more demanding as regards habitat than the preceding species. Found particularly on open sandy and gravelly ground, sometimes near the coast. Individuals that have survived the winter are seen in May–June, those of the new generation in August–September. For the larva, see no. 441.

3 *Cicindela sylvatica*

Wood Tiger Beetle

Characteristics: L. 15–19 mm. Upperside bronzy-black with a

slight silky sheen. Elytra with shallow depressions and three markings as in the preceding species, but these are somewhat narrower, the rearmost in the form of a roundish spot. Underside violet to iridescent green.

Distribution: Northern and central Europe, extending north to Lapland. Found in parts of Britain, but not common.

Habitat and habits: Occurs mainly in dry sandy pine forests and on heathland, and is seen in the period from May to September, but mostly in June.

4 *Cicindela germanica*

Characteristics: L. 8–11 mm. A small slender species with the upperside dark greenish, sometimes bluish or almost black. The pattern on the elytra is very variable, but usually has three spots along the outer edges. Underside iridescent greenish.

Distribution: Europe. Found locally in south-west England and the Isle of Wight.

Habitat and habits: Adults are seen mainly in warm grassy places where they run about very rapidly, but unlike the three preceding species do not fly. They are active from early summer onwards.

CARABIDAE (Ground Beetles)

The well-known ground beetles of the family Carabidae vary in size from about 1 mm to 8 cm. The head is usually very small, the antennae filamentous, the thorax broader than the head and the elytra elongated oval. The mouthparts are powerful. The legs are adapted mainly for running, but sometimes the front legs are also used for scraping. In the males, the outermost leg joints are broader, particularly on the front legs, than in the females. Ground beetles live in all sorts of habitats, and some are diurnal whereas others are active in the evening and at night. Most of them are predatory, but some also take plant food. The larvae are also predatory and live in much the same kind of places as the adults. There are about 300 species in Britain, a small number in comparison with some 20,000 carabids in the world.

5 *Calosoma sycophanta*

Characteristics: L. 25–30 mm. Head and thorax iridescent blue to blue-black. Elytra glossy green with a

coppery sheen. The raised edges of the thorax extend back to the rear corners.

Distribution: Widespread in Europe

and northern Asia, occurring only as an occasional immigrant in southern England.

Habitat and habits: Mainly seen in woodland and scrub. Both the adults and the larvae crawl up into the trees where they hunt the larvae of moths. The larvae have been taken to North America to help in the control of brown-tailed and gipsy moths. The adults spend the winter in a pupal chamber in the ground, often among the roots of fallen trees. The adult beetles are mainly seen in June–July.

6 *Calosoma inquisitor*

Characteristics: L. 15–20 mm. Body darker than in the preceding species, and the raised edges of the thorax do not extend back to the rear corners.

Distribution: Widespread in Europe, northwards to southern Norway, central Sweden and south-western Finland. Occurs locally in England and Ireland.

Habitat and habits: Occurs mainly in early summer (May–June) in open deciduous woodland, particularly among oaks. Like the other species of *Calosoma* this one moves about in the trees hunting for moth larvae, and among others it takes quite a few larvae of *Tortrix viridana*. The adult spends the winter in its pupal chamber in the ground.

7 *Calosoma auropunctatum*

Characteristics: L. 20–30 mm. The body is coppery-black and more

elongated than in the preceding species. The elytra have three rows of golden dots.

Distribution: Central and western Europe, but not in Britain.

Habitat and habits: Both the adults and the larvae hunt the larvae of moths, but they keep to the ground. The species is seen mainly in June–August, and is most active at sunset. The winter is spent in the adult or imago stage.

8 *Procerus gigas*

Characteristics: L. 40–50 mm. A large black species with coarse puncturation on the head, thorax and elytra.

Distribution: Balkans and northwards to the Austrian and Italian Alps. Not found in Britain.

Habitat and habits: Feeds mainly on snails. The adults live at least three years.

9 *Carabus cancellatus*

Characteristics: L. 20–26 mm. Greenish-copper with strong iridescence. Elytra with rows of elevations. The legs may be black or pale red-brown.

Distribution: Europe and northern Asia eastwards to the River Lena, with a number of subspecies. Recorded once in Ireland.

Habitat and habits: Common in sandy or muddy areas, but only in open places, such as fields and open woodland. The adults can be found during most parts of the

year, but particularly in May–June. The species spends the winter in the larval stage. The larvae are predatory and hunt on the ground.

10 *Carabus granulatus*

Characteristics: L. 14–23 mm. Similar to the preceding species, but narrower. Upperside black with dark bronze or greenish iridescence. Elytra with rows of oblong elevations.

Distribution: Europe, extending north to 65°N in Finland. Common in Britain.

Habitat and habits: Widespread on muddy ground in woodland and elsewhere. This and the related *C. clathratus* are among the moisture-loving species of *Carabus*. The adults overwinter, often many together. They can be seen throughout the year, but mainly in May–June.

11 *Carabus auratus*

Characteristics: L. 20–27 mm. Body greenish with golden iridescence. Each elytron has three broad, raised ribs.

Distribution: Western Europe, and eastwards to the River Elbe. This species is rarely seen in Britain, but is common on the Continent.

Habitat and habits: Mainly in cultivated areas, such as fields and gardens and seen mainly in spring. It feeds, among other things, on cockchafer larvae.

12 *Carabus ullrichi*

Characteristics: L. 26–30 mm. Broad oval, the upperside coppery or more greenish. Elytra with very conspicuous rows of small projections, forming ‘chains’.

Distribution: Central Europe, with two distinct subspecies, one in the east, and one in the west. Not found in Britain.

Habitat and habits: Fields, woodland and scrub, where they are seen mainly in the spring.

13 *Carabus nemoralis*

Characteristics: L. 23–28 mm. Black, with the sides of the thorax usually purplish or violet. Elytra with varying degrees of iridescence, and with fine grooves and rows of large pits.

Distribution: Most of Europe, except the northerly regions. Common and widespread in Britain.

Habitat and habits: A common ground beetle living in open country and in woodland, parks and gardens. The adults are mostly seen during two periods of the year, April–May and again in August, and they overwinter. For the larva, see no. 442.

14 *Carabus hortensis*

Characteristics: L. 22–29 mm. Upperside bronzy-black, with greenish to violet iridescence along the sides of the thorax and elytra. The latter have five longitudinal stripes, about twenty-six on each,

and three rows of large, copper-coloured pits.

Distribution: Europe, except the most westerly areas bordering the Atlantic. Not found in Britain.

Habitat and habits: Found principally in woodland and gardens and in greatest numbers during the summer and autumn. Both larvae and adults may overwinter.

15 *Carabus glabratus*

Characteristics: L. 22–29 mm. Upperside black, often with bluish iridescence. Elytra strongly arched, with an oily gloss but no pattern.

Distribution: Europe eastwards to the Urals, but absent from southern Europe. Rare and local in Britain.

Habitat and habits: Occurs mainly in mountainous areas, often in woodland, but in some areas also in more open country. The adults are seen in the period from May to August.

16 *Carabus nitens*

Characteristics: L. 13–16 mm. Characterized by the coloration and sculpturing of the green elytra, each of which has raised edges and three conspicuous longitudinal ribs. Head coppery-red.

Distribution: Europe with approximately the same distribution as the preceding species. Found only locally in Britain and Ireland.

Habitat and habits: Found principally on open, sandy ground with heathland vegetation or on moor-

land, including peat bog. Mostly seen in early summer and again in August–September. The adults overwinter.

17 *Carabus intricatus*

Characteristics: L. 24–32 mm. Characterized by the elongated flat body, and the long legs and antennae. Coloration blue-black, with bluish-violet along the edges. Elytra coarsely wrinkled, each with three more or less prominent rows of raised granules.

Distribution: Central and southern Europe. This species has been recorded as rare in Devon.

Habitat and habits: A typical woodland beetle which overwinters under thick cushions of moss on rocks or tree stumps, often with several individuals close together. Seen in greatest numbers in spring, when breeding takes place.

18 *Carabus variolosus*

Characteristics: L. 23–30 mm. Black with a matt surface. Elytra with three ribs broken up by shallow depressions.

Distribution: Central Europe southwards to northern Italy, but absent from Britain.

Habitat and habits: Damp tracts close to water, particularly in mountainous regions. Both the adults and the larvae hunt in the water. The adults, which are mainly seen in spring, later overwinter under the bark of rotting trees.

19 *Carabus atronitens*

Characteristics: L. 18–26 mm. A very attractive greenish-golden species. Elytra with three dark ribs. Legs usually red-brown.

Distribution: Central Europe, including the Carpathians, southwards to Romania and westwards to France, but absent from Britain.

Habitat and habits: Woodland in hilly districts, extending up into the alpine zone. Active from spring to autumn and both the adults and larvae overwinter in rotting trees.

20 *Carabus irregularis*

Characteristics: L. 17–28 mm. Head larger than is normal for this group of beetles. Elytra flat, copper-brown with irregularly arranged golden-green dots.

Distribution: Mountain regions in central and eastern Europe. Absent from Britain.

Habitat and habits: Mainly seen during the spring in woodland, particularly beech woods in hilly regions. The adults overwinter in rotting trees.

21 *Carabus violaceus***Violet Ground Beetle**

Characteristics: L. 20–34 mm. Black, the sides of the thorax and elytra usually with varying degrees of iridescence. Elytra with closely set, uniform granules.

Distribution: The whole of Europe, eastwards to central Asia. Common in England and Scotland.

Habitat and habits: Found particu-

larly in woodland, both deciduous and coniferous. The adults appear in large numbers in June–August. Both larvae and adults overwinter.

22 *Carabus coriaceus*

Characteristics: L. 34–40 mm. A very large ground beetle with a matt black upperside. Elytra with a very coarse pattern of dots and wrinkles, sometimes with three rather indistinct rows of pits.

Distribution: Europe, except the most northerly regions. Not found in Britain.

Habitat and habits: Associated particularly with open woodland and clearings, especially those with oak and often in rather damp areas. The adults are most numerous in spring and again in late summer. Both larvae and adults overwinter.

23 *Cychrus caraboides*

Characteristics: L. 15–19 mm. Completely black with a narrow, snout-shaped head. Thorax heart-shaped. Elytra very convex with fine granules.

Distribution: The whole of Europe. Widespread, but not abundant in Britain.

Habitat and habits: Damp deciduous woods with poor light. The adults spend the day under bark and moss on old tree stumps. They become active at night and hunt for snails, the narrow head being

well adapted for getting into the shell. They are seen from March to December, but least commonly in July. Both larvae and adults overwinter. The adults eject a stream of yellow liquid when threatened.

24 *Nebria livida*

Characteristics: L. 14–16 mm. Black, with the sides of the thorax and elytra reddish-brown.

Distribution: Europe and northern Asia, eastwards to Japan. Found very locally in Britain.

Habitat and habits: Occurs particularly in damp places, along the edges of lakes and at the foot of maritime dunes. Hides away under stone during the day. The adults are mostly found from May to September. This species overwinters in the larval state.

25 *Notiophilus biguttatus*

Characteristics: L. 5–6 mm. The species of the genus *Notiophilus* are characterized by the rather parallel-sided form of the body and the large, prominent eyes. In the species shown the elytra have a yellowish marking (but this cannot be seen in the figure).

Distribution: Europe northwards to central Scandinavia. Common in Britain.

Habitat and habits: Occurs particularly in woodland, mainly from May to August. The adults overwinter.

26 *Elaphrus riparius*

Characteristics: L. 6.5–7.5 mm. Bronze-green. Elytra with rows of large eye-spots.

Distribution: Europe, northern Asia and northern America. Common in parts of England and Scotland.

Habitat and habits: Often seen in open country with poor vegetation, and usually in the vicinity of water. This species may be found more or less throughout the year, but the peak of abundance is in June.

27 *Omophron limbatum*

Characteristics: L. 5–6.5 mm. This species is easily recognized by its shape. The elytra are ribbed, and yellowish-brown with dark brown spots.

Distribution: Europe, extending northwards to southern Sweden. Not found in Britain.

Habitat and habits: Mainly found in bare sandy or muddy places along the banks of lakes or slow-flowing rivers. Most numerous from May to August.

28 *Clivina fossor*

Characteristics: L. 5.5–6.2 mm. Black or more or less brownish. Thorax conspicuously separated from the abdomen by a narrow waist. The front legs are adapted for digging.

Distribution: Europe, including Scandinavia, except the most northerly parts. Also in northern

Asia and northern America. Common in Britain.

Habitat and habits: Occurs in damp areas with sparse vegetation, where it lives in subterranean burrows close to the surface, and often under dung. It can be found throughout the year, but particularly in May–July.

29 *Broscus cephalotes*

Characteristics: L. 17–22 mm. Uniform black, with a large, broad head and a heart-shaped thorax. Elytra elongated and very convex. *Distribution:* Europe, northwards to central Scandinavia, and western Asia. Found locally in Britain.

Habitat and habits: Typically along the coasts in open, sunny places with sand or gravel. The adult digs a burrow in the ground and remains at its opening waiting for prey. Adults of this species occur from March to October with a peak in June–August. Both larvae and adults overwinter.

30 *Bembidion lampros*

Characteristics: L. 3–4.4 mm. A shiny, bronze-coloured beetle. The inner surfaces of the legs and antennae are yellowish-red. This is a representative of a large genus which has c. 57 species in Britain alone, most of which occur on damp ground.

Distribution: Europe and northern Asia. Very common in Britain.

Habitat and habits: Frequently found on cultivated land. The

adults can be seen at all times of the year, but most numerous in May–June.

31 *Trechus quadristriatus*

Characteristics: L. 3–4.5 mm. Pale or dark brown, the head somewhat darker, and the mouthparts, antennae and legs yellow.

Distribution: Europe, northwards to central Scandinavia, also western Asia and northern Africa. Very common in Britain.

Habitat and habits: Dry grassy places, such as fields and meadows, often living underground in mouse runs. It is mostly seen in July–August but may occur throughout the year. It is mainly the larvae that overwinter.

32 *Chlaenius vestitus*

Characteristics: L. 8.5–11 mm. Upperside iridescent green, elytra with a yellow edge which becomes broader towards the rear. Mouthparts, antennae and legs yellow. There are three other species of the genus in Britain, which all have uniformly coloured elytra.

Distribution: Europe, western Asia and northern Africa, including England south of Yorkshire, and parts of Ireland.

Habitat and habits: Lives principally in the vicinity of standing water in shady places with mud or loam. Most abundant during the summer.

33 *Callistus lunatus*

Characteristics: L. 6–7 mm. A very attractively coloured ground beetle

and the only member of its genus in Europe. Thorax and elytra yellow, the latter with five striking black markings, which show bluish iridescence. Head blue-black.

Distribution: Europe, northwards to southern England and the Netherlands, and eastwards to Asia Minor and Iran.

Habitat and habits: Lives on dry, sunny slopes with sand or chalk, and is mostly seen in the spring. On sunny days these beetles run around at remarkable speed. They overwinter as adults.

34 *Badister unipustulatus*

Characteristics: L. 6.9–8.2 mm. Thorax and elytra reddish-yellow. The head and a crescentic marking on each elytron are black.

Distribution: Europe, northwards to southern Sweden, and western Asia. Found locally in northern England, also in Ireland.

Habitat and habits: Lives in damp, shady places close to standing fresh waters, and usually to be found under bark and moss on old tree stumps. This species is most commonly seen in June–July, which is the breeding period.

35 *Harpalus aeneus*

Characteristics: L. 8–12 mm. Upperside iridescent green or copper-coloured, rarely bluish or almost blackish. Antennae and legs reddish-yellow. This is a member of a large genus with over

100 species in Europe, of which about 36 occur in Britain.

Distribution: Europe extending northwards into most of Scandinavia, and northern Asia. Common in Britain.

Habitat and habits: Like other species of the genus *Harpalus* this beetle lives in warm, open places, often in cultivated land, where it hides away during the day under stones and dead vegetation.

36 *Stenolophus teutonius*

Characteristics: L. 6–6.5 mm. Thorax and elytra reddish-yellow, the latter with a blue-black area to the rear. Head black.

Distribution: Southern and central Europe, northwards to southern Sweden. Found locally in eastern and south-eastern England.

Habitat and habits: Lives in warm, damp places close to running water, or along coastal dunes with springs. Most commonly seen in June. The species overwinters in the adult stage.

37 *Amara familiaris*

Characteristics: L. 5–7 mm. Body oval, the upperside dark metallic, and the legs reddish-yellow. Similar to many other species of *Amara*, of which almost 30 have been recorded in Britain. They are difficult to identify.

Distribution: Europe, including Britain, and northern Asia.

Habitat and habits: Lives in woodland and on cultivated land, often

close to human habitation. The adults can be seen throughout the year, but particularly in May and June.

38 *Zabrus tenebroides*

Characteristics: L. 14–16 mm. A robust, oval, brownish-black or completely black ground beetle. The rear corners of the thorax are almost rectangular.

Distribution: Europe and western Asia. Found in eastern and southern England.

Habitat and habits: Mostly found in grassy fields and meadows, and in contrast to most other ground beetles this is a vegetarian species. Both the adults and the larvae may cause damage in cornfields, the former by crawling up the plants and gnawing the stems, the latter by eating the leaves of winter corn. Adults can be seen throughout the year, but mostly in July–August. Both adults and larvae overwinter.

39 *Feronia melanaria*

Characteristics: L. 13–17 mm. Like most species in the large genus *Feronia* this beetle is a uniform black and has an oblong body. Over 200 species of the genus occur in Europe, of which about 20 are in Britain, and only experts can identify them.

Distribution: Europe and northern Asia. Common in Britain.

Habitat and habits: Seen most fre-

quently in fields and gardens, this is the ground beetle commonly encountered in cellars. It appears most abundantly in July–August and in some areas has proved a pest of certain plant crops. Both larvae and adults overwinter.

40 *Panagaeus bipustulatus*

Characteristics: L. 6.7–7.7 mm. Thorax almost circular, with conspicuous sculpturing. General coloration black, the elytra with four red markings.

Distribution: Southern and central Europe extending northwards to south-eastern Sweden, and eastwards to Iran. Found rarely in eastern and southern England.

Habitat and habits: Usually in dry, sandy or gravelly areas, particularly where there is chalk, and seen most commonly in May and June. The closely related *P. cruxmajor* lives in damper places.

41 *Dolichus halensis*

Characteristics: L. 15–18 mm. A narrow, black species with reddish-yellow mouthparts, antennae and legs. The edge of the thorax and an area at the front of the elytra are reddish. The only European species in the genus.

Distribution: Europe and northern Asia, eastwards to Japan. Absent from Britain.

Habitat and habits: Lives in fields, especially cornfields, and is seen mostly in August.

42 *Agonum sexpunctatum*

Characteristics: L. 7·8–9 mm. Head and thorax metallic green, elytra coppery-red with greenish edges. The genus has a large number of species which vary in size and coloration.

Distribution: Europe and northern Asia, including Scandinavia, except the most northerly areas, but only rarely found in England.

Habitat and habits: Found mainly in grassy areas that are fairly damp, and most abundantly in June.

43 *Lebia cyanocephala*

Characteristics: L. 5·5–7·5 mm. Metallic green or bluish, except the first three antennal joints, the thorax and the legs (but not the tarsus), which are reddish-yellow.

Distribution: Europe and western Asia. Found only rarely in England.

Habitat and habits: Lives in very open, dry, warm places, often crawling up into the vegetation. In central Europe this species is seen mostly during the spring, but further north more commonly in late summer. The adults overwinter.

44 *Brachinus crepitans*

Bombardier Beetle

Characteristics: L. 6·5–9·5 mm. The head, with its appendages and the thorax and legs are reddish-yellow. Elytra matt blue-green.

Distribution: Europe, extending northwards to central Sweden. Found locally in southern England, and in Ireland.

Habitat and habits: Lives in dry, sunny places in chalky districts, and often under stones. Seen most abundantly in May–June. The habits of this species are not known in detail, but in other species of the genus the larvae attack and eat the pupae of certain aquatic beetles. The adults are capable of ejecting a volatile liquid from the anus, hence the popular name of bombardier beetle. This liquid produces a burning sensation on human skin; chemically the substance is now known to be a quinone.

45 *Calliura melanura*

Characteristics: L. 6·3–7·5 mm. This is a species with a very narrow thorax. Head and thorax metallic-green, elytra orange with black tips. Formerly known as *Odacantha melanura*.

Distribution: Europe northwards to central Sweden and southern Finland, and in northern Asia. Found in eastern and southern England.

Habitat and habits: Banks of lakes and marshland with growths of reeds (*Phragmites*) and reedmace (*Typha*). In spring it can be sifted in large numbers from material washed ashore. In winter it hides away in the hollow stems.

HALIPLIDAE

In general, the members of this family are quite small and there are not many of them. They have a very arched, almost boat-shaped body, and are mostly brown to yellow-brown. All the haliplid beetles live in waters with dense vegetation, both as larvae and as adults. The larvae are very slender and have a number of fleshy processes on the body segments. Both larvae and adults feed primarily on green algae. About 200 species have been described, of which only about eighteen have been recorded in Britain.

46 *Haliphus ruficollis*

Characteristics: L. 2-2.5 mm. A yellow-brown species with rather indistinct black markings. Similar to several other species in the genus.

Distribution: Europe, northern Asia and Asia Minor. Common in Britain.

Habitat and habits: A widespread species of *Haliphus*, living in standing fresh waters.

DYTISCIDAE

All the members of this family live in water, both as larvae and adults. They vary in size from 3 mm to almost 45 mm. Most are brown to brownish-black, but there are some yellow forms and these often have dark markings on the elytra. The body is flat, the antennae filamentous and the hind limbs are modified for swimming. In the males the first three basal segments of the front tarsi are expanded to form a suckered disc which serves to hold the female during mating. These beetles have to come up to the surface for air at regular intervals. The air is stored in a cavity underneath the elytra. The larvae resemble those of the ground beetles, but their mandibles are hollow and function as suction tubes. Both the larvae and the adults are predatory. Pupation takes place in damp soil. The adult beetles fly in the evening and at night. The family contains about 4,000 species of which over 100 occur in Britain.

47 *Hyphydrus ovatus*

Characteristics: L. 4.5–5 mm. Red-brown, but the elytra are often darker, with double puncturation in the male, but little or none in the female which is matt. A member of a mainly tropical genus. *Distribution:* Europe and Siberia. Found locally in southern England and Wales.

Habitat and habits: Lives in standing waters with dense vegetation, and can be found at all times of the year. The yellowish larvae with dark transverse barring live in the same waters.

48 *Hydroporus palustris*

Characteristics: L. 3.5–4 mm. Brownish-black, the head and the sides of the thorax with a broad yellow border. Elytra black with a yellow outer edge.

Distribution: Europe and northern Asia. Common in Britain.

Habitat and habits: Lives in all types of standing water, including lakes in the mountains. The larvae live in the same waters, and both adults and larvae can be found throughout the year.

49 *Noterus clavicornis*

Characteristics: L. 4.2–4.5 mm. Yellow-brown to red-brown, the head and thorax glossy. Elytra with a number of scattered, coarse dots. *Distribution:* Europe, extending northwards to southern Scandinavia. Locally distributed in England and Ireland.

Habitat and habits: Lives mainly in clean pools and lakes with dense vegetation where it can be found from early spring until autumn.

50 *Laccophilus hyalinus*

Characteristics: L. 4–4.5 mm. Yellow-brown, with rather indistinct pale yellow markings along the edges.

Distribution: Europe, extending into Scandinavia, and eastwards to central Asia. Found in most parts of Britain.

Habitat and habits: Occurs in ponds and small pools, usually among vegetation, and most abundantly in spring and autumn. The larvae living in the same places, have long, slender limbs.

51 *Agabus bipustulatus*

Characteristics: L. 10–11 mm. Black, with a slightly leaden sheen in the male. Head with two reddish markings. Mouthparts, antennae and front limbs red-brown. There several related species and they are difficult to identify.

Distribution: Europe, including the whole of Scandinavia northwards to Lapland. Common in Britain.

Habitat and habits: Found in various types of standing water. This species flies around quite a lot and therefore often appears in garden pools. For the larva, see no. 445.

52 *Platambus maculatus*

Characteristics: L. 7–8 mm. Body oval and brownish-black. Head,

thorax and elytra with conspicuous yellowish markings.

Distribution: Europe, extending northwards into Scandinavia.

Common in Britain.

Habitat and habits: Lives among vegetation in lakes and rivers with stony or sandy bottoms, and is frequently found in brackish waters. The species overwinters in the larval state.

53 *Colymbetes fuscus*

Characteristics: L. 15–17 mm. Body relatively narrow, and brown to dark brown, often with greenish iridescence. The outer edges of the elytra are yellowish.

Distribution: Europe and northern Asia, extending northwards in Scandinavia to c. 60°N. Widely distributed in Britain.

Habitat and habits: A very common water beetle living in standing waters with a muddy bottom, and seen most abundantly in spring and autumn. The larvae can be seen at all times of the year, and they overwinter.

54 *Acilius sulcatus*

Characteristics: L. 16–18 mm. Both the upper and undersides are marked with dots. Elytra almost smooth in the male, but with three or four ridges in the female, the spaces between having densely packed hairs. General coloration bronzy-brown, the thorax black with a yellow border and a transverse bar of the same colour.

Distribution: Europe, including the whole of Scandinavia, and eastwards to northern Asia. Widespread in Britain.

Habitat and habits: Found in all types of standing water. The larva is characteristically narrow in front and behind, and seen from the side it has a hump in the middle.

55 *Dytiscus marginalis*

Diving Beetle

Characteristics: L. 27–32 mm. Dark brownish to almost black, with the edges of the head and thorax yellow. Legs yellow. Elytra smooth in the male, but ridged in the female, except for the hindmost third. In the male the front legs have two large and several very small suction pads.

Distribution: Europe and northern Asia. Common in Britain.

Habitat and habits: Lives in both standing and running waters. The adults fly around at night and frequently land in garden pools, and on greenhouses and forcing frames from which they find it difficult to take off. The female usually lays in the stems of water plants. For the larva see no. 444.

56 *Dytiscus latissimus*

Characteristics: L. 36–45 mm. A large broad species in which the elytra are extended laterally. Upperside black with yellow edges, smooth in the male but ridged in

the female. Underside and legs yellow.

Distribution: Europe and northern Asia, but not found in Britain.

Habitat and habits: Lives mostly in large lakes. In some areas this species has been adversely affected by pollution.

57 *Cybister laterimarginalis*

Characteristics: L. 30–35 mm. Upperside dark olive-black, under-

side yellowish. In the male the front legs have suction pads. This is the only European species in a mainly tropical genus.

Distribution: Southern and central Europe. Not found in Britain.

Habitat and habits: A warmth-loving species found in large lakes in low-lying areas. The larva is 65 mm long, very slender and with the rearmost segment narrow and without appendages.

GYRINIDAE

These are small, oval beetles, commonly known as whirligig beetles, which swim about at the surface in the waters of lakes and rivers. The antennae are very short and the eyes are divided into an upper and a lower part, an arrangement that allows these beetles to see in the air and in the water. The front legs are long, while the middle and back legs are modified for swimming. In fine weather whirligig beetles often congregate in large numbers at the water surface. The larvae live down among aquatic vegetation and have feathery tracheal gills on the sides of the abdominal segments. Both adults and larvae are predatory. The family contains about 700 species, of which twelve occur in Britain.

58 *Gyrinus natator*

Characteristics: L. 5–7 mm. Glossy steel-blue. Body very broad with much rounded sides.

Distribution: Europe, northern and central Asia. Widespread in Britain.

Habitat and habits: A common, widespread species, living either in lakes or in the quieter stretches of rivers

and streams. Both the larvae and adults feed mainly on mosquito larvae. For the larva, see no. 446.

59 *Orectochilus villosus*

Hairy Whirligig

Characteristics: L. 5.5–6.5 mm. Narrower and more elongated than the preceding species. Elytra with fine hairs. Coloration black

with a leaden sheen. Mouthparts, antennae, legs and underside reddish-yellow.

Distribution: Europe and northern Asia. Widespread in Britain.

Habitat and habits: Lives in large

lakes and also in running water. Unlike *Gyrinus natator* this species is not active during the day, but remains hidden under stones. It emerges in the evening and may then congregate in large numbers.

HYDROPHILIDAE

Most members of this family live in water, but some live on land, particularly in manure or among rotting vegetation. The body form is very variable. The maxillary palps are well developed and function as antennae, while the true antennae are short and in the aquatic species are used for taking in air at the water surface. In contrast to those of the Dytiscidae the larvae are always straight and elongated, but they are very variable in appearance. Neither the larvae nor the adults are adapted for swimming, but move around by crawling on the bottom or in among water plants. Most feed on plants or rotting materials, and only a few of the larger species are predatory. The family contains about 2,000 species, of which about 118 species have been recorded in Britain.

60 *Helophorus aquaticus*

Characteristics: L. 4–9 mm. Easily recognizable by the rather parallel-sided shape of the body, and the five longitudinal ridges on the thorax. Head and thorax dark metallic green, elytra brown or yellow-brown, often with black spots arranged in rows.

Distribution: Europe and northern Asia. Widespread in Britain.

Habitat and habits: Found in all types of water, sometimes even in polluted pools in fields or in

ditches. In some areas this species may occur in brackish water.

61 *Hydraena riparia*

Characteristics: L. 2.2–2.4 mm. A small dark species, in which the thorax becomes narrow towards the rear. Elytra longish oval, usually brown with regular rows of dots.

Distribution: Europe and eastwards to northern Asia. Found in Britain.

Habitat and habits: Common in small streams and pools. If the

water should dry up in summer the beetles can survive in among the vegetation.

62 *Ochthebius gibbosus*

Characteristics: L. 1.2–1.3 mm. Black with a coppery sheen. Elytra short and oval with coarse stripes.

Distribution: A common species in central Europe, but not found in Britain.

Habitat and habits: Lives in rivers, and sometimes occurs in material washed ashore. This species can be found from early spring until the first months of winter.

63 *Spercheus emarginatus*

Characteristics: L. 5.5–7 mm. A short, oval and much arched beetle. Elytra yellow-brown with small black spots and dense, coarse puncturation. Head and thorax mainly brownish-black, but the front of the head and the sides of the thorax are red-brown.

Distribution: Northern parts of Europe and northern Asia. Recorded as rare in Britain.

Habitat and habits: Lives in standing, muddy waters, often in places with much rotting vegetation. Both the adults and the larvae are carnivorous.

64 *Berosus luridus*

Characteristics: L. 3.5–4.8 mm. Head quite small, with protruding eyes. General coloration brownish, the

head and thorax coppery-golden, the elytra with various black markings.

Distribution: Europe and northern Asia, extending right up to Arctic Circle in Scandinavia. Found locally in Britain.

Habitat and habits: Lives mostly in pools and ditches, but is sometimes found in brackish water. This species can produce sounds by stridulation of the abdomen.

65 *Hydrophilus piceus*

Great Silver Beetle

Characteristics: L. 34–47 mm. Upperside shiny, with greenish-black iridescence in the living animal. The elytra become narrow towards the rear. Antennae and maxillary palps reddish-yellow.

Distribution: Large parts of northern Europe, but mainly a southern species.

Habitat and habits: Lives in standing fresh waters with a muddy bottom. The larva, which grows to a length of 6 cm, is a voracious predator which sucks the body tissues of other insect larvae, and also of fish fry and tadpoles.

66 *Hydrochara caraboides*

Characteristics: L. 14–18 mm. Black, with greenish iridescence in the living animal. Each elytron has five rows of extremely fine dots. Antennae and maxillary palps reddish-yellow.

Distribution: The whole of Europe

and northern Asia. Found locally in Britain.

Habitat and habits: Lives in ponds and other bodies of standing fresh water, usually with plenty of vegetation. The larva, which is 25 mm long, is predatory, feeding on insect larvae, small crustaceans and also tadpoles. It is often seen hanging down from the surface by the tip of the abdomen.

67 *Enochrus affinis*

Characteristics: L. 3-4 mm. Ground coloration yellow-brown, head black, thorax sometimes dark in the middle.

Distribution: Europe and northern Asia. Found locally in Britain.

Habitat and habits: Lives in standing or slow-flowing fresh waters, and can often be found in large numbers in vegetation that has been washed ashore. The females lay their eggs in silky bags which they attach to aquatic plants. The larvae crawl about among the vegetation in much the same way as caterpillars.

68 *Sphaeridium scarabaeoides*

Characteristics: L. 5-6.5 mm. General coloration mainly blackish. Elytra with a well-defined

reddish marking in front and a yellowish marking at the rear.

Distribution: Europe and northern Asia. Found in Britain.

Habitat and habits: Lives principally in fresh cow manure. For the larva, see no. 450.

69 *Cercyon haemorrhoidalis*

Characteristics: L. 2.5-3.2 mm. A small, black species with a short, oval body. Thorax and elytra with distinct puncturation. Elytra usually reddish at the front and rear, sometimes completely red.

Distribution: Europe and northern Asia. A common beetle in Britain.

Habitat and habits: Occurs in manure or in rotting vegetation, sometimes in wet sand and/or mud, and often in large numbers.

70 *Cercyon pygmaeus*

Characteristics: L. 1.3-1.6 mm. Body form distinctly narrower than in the preceding species. The colour of the elytra varies, sometimes being almost completely red (as shown in the illustration), sometimes black with only the tips red.

Distribution: Europe and northern Asia. Widespread in Britain.

Habitat and habits: Lives in manure and rotting vegetation.

HISTERIDAE

It is characteristic of the members of this family that the elytra are truncated at the rear and do not cover the tip of the abdomen. The body is short and oval and usually somewhat flattened. The antennae are geniculate (kneed). Both adults and larvae are predators that feed on other insects. The family has about 2,500 species, of which about 42 occur in Britain.

71 *Hister quadrinotatus*

Characteristics: L. 5–8 mm. A shiny, black species. Each elytron has two red markings which are often fused.

Distribution: Southern and central Europe, extending northwards to southern Jutland. Not found in Britain.

Habitat and habits: A warmth-loving species which is particularly associated with horse and cow manure, in which the larvae prey on other insect larvae.

72 *Hololepta plana*

Characteristics: L. 8–9 mm. A shiny, smooth black species with a much flattened body. The tibiae are broad with large teeth on the sides.

Distribution: Europe, extending northwards to southern Norway and Finland, but absent from Sweden, Denmark and Britain.

Habitat and habits: Lives under the bark of old rotting trunks of poplar (*Populus*). The larvae, which live in the same place, feed on the larvae of flies and other insects. They pupate in the autumn.

PTILIIDAE

This family contains the smallest known beetles. Only a few of the species reach a length of 2 mm, and the smallest of all is a North American species that is only $\frac{1}{4}$ mm long. They are often very difficult to identify. These small beetles live under bark, in hollow trees, ant hills, birds' nests and rotting vegetation. The family contains about 350 species, of which 59 occur in Britain.

73 *Ptiliolum kunzei*

Characteristics: L. c. 0.5 mm. The front corner of each elytron has a fine tooth. Coloration brownish-

black with a yellow stripe at the rear of the elytra. Legs yellowish-brown.

Distribution: Widespread in Europe

and northern Asia, extending northwards to Lapland. Found locally in Britain.

Habitat and habits: Probably very abundant, but not often observed

on account of its minute size. Lives in manure and garden waste, and in autumn is sometimes found in sheep droppings.

LEPTINIDAE

This is a small group of beetles, often regarded as a subfamily of the Silphidae (see below). They have no eyes and the antennae are long and thin. The few species in the group live in the burrows of rodents and insectivores, or in the nests of birds, ants and bumble-bees. The species *Platypsyllus castoris* is found on the beaver in Scandinavia.

74 *Leptinus testaceus*

Characteristics: L. c. 2 mm. A much flattened species with a broad prothorax and short elytra. Coloration yellow or reddish-yellow, with a dense covering of yellowish hairs.

Distribution: Europe, extending northwards into southern Sweden and Norway. Found only rarely in Britain.

Habitat and habits: Lives hidden away in the nests of bumble-bees and field mice.

SILPHIDAE

This family contains beetles which vary considerably in size and body form. The antennae usually terminate in a club. At least the first three tergites in the abdomen are soft-skinned. Their habits are also varied; some feed on fresh plant material, some on carrion, while others are predatory. The family is mainly holarctic (northern Europe, Asia and America) and contains about 250 species, of which about 60 have been recorded in Britain.

75 *Choleva agilis*

Characteristics: L. 4.5–5 mm. The sides and rear corners of the thorax are rounded. Coloration pale or

dark brown. Antennae, palps and legs reddish.

Distribution: Widespread in Europe, and extending far into Asia.

Found fairly commonly in parts of England, Scotland and Ireland. *Habitat and habits*: Lives mainly under dry vegetation, such as dead leaves, in meadows and woodland.

76 *Necrophorus humator*

Characteristics: L. 15–28 mm. Completely black and relatively slender. The terminal club of the antennae is reddish-yellow. In the related, but larger, *N. germanicus* the epipleures of the elytra are red.

Distribution: Europe, northern Africa and Asia Minor. Widespread and common in Britain.

Habitat and habits: Seen in the period April–October. It becomes active in the evening, when it usually moves to carrion on which it feeds and in which it lays its eggs. It is also found on fungi.

77 *Necrophorus vespillo*

Characteristics: L. 12–22 mm. This beetle represents a group of *Necrophorus* species which have red bands on the elytra. The tibia of the back legs are characteristically curved.

Distribution: Europe and northern Asia. A common species in Britain.

Habitat and habits: Found mainly in fields and meadows, where it lives in much the same way as the preceding species, preferring small carrion, such as dead mice. These beetles can be seen flying around during the evening and at night, searching for carrion. For the larva, see no. 447.

78 *Necrodes litoralis*

Characteristics: L. 15–25 mm. A black, almost hairless species. Elytra flat with a transverse swelling towards the rear, and each having three longitudinal ridges and fine puncturation. Tibia very curved.

Distribution: Europe and northern Asia, extending eastwards to Japan. Occurs in some parts of Britain.

Habitat and habits: Found on large carrion, often in great numbers. The size of the adult beetle varies considerably, depending upon the amount of food available to the larva.

79 *Thanatophilus rugosus*

Characteristics: L. 10–14 mm. Head very small, body short and oval, coloration matt black. Elytra each with three ribs, the areas between these having shiny flat granules.

Distribution: Europe and Asia. Common and widespread in Britain.

Habitat and habits: Lives on carrion and in manure.

80 *Oeceoptoma thoracica*

Characteristics: L. 12–16 mm. Thorax red. Elytra silky-black, each with three fine longitudinal ridges and a transverse swelling towards the rear.

Distribution: Europe and northern Asia. Found in Britain.

Habitat and habits: Common in woodland, on carrion, manure, rotting fungi, including the

stinkhorn (*Phallus impudicus*). This species feeds mainly on the larvae of flies and other insects.

81 *Aclypea opaca*

Characteristics: L. 9–12 mm. A flat, oval species which is completely black and covered with golden hairs. The spaces between the elytral ridges do not have transverse wrinkles, which distinguishes the species from the similar *A. undata*.

Distribution: Europe and western Asia. A rather rare species in Britain.

Habitat and habits: Found in open sites in fields, meadows and along roads. Both the larvae and the adults feed on plants and may cause damage to seedlings of beet-root in spring. For the larvae, see no. 448.

82 *Xylodrepa quadripunctata*

Characteristics: L. 12–15 mm. A broad, oval beetle. Head and centre of thorax black. Sides of thorax and elytra yellow-brown, the latter each having two black swellings, one in front and one just behind the centre.

Distribution: Europe. Found locally in Britain.

Habitat and habits: A typical beetle of oak woods. The larvae live on the ground, but the adults often

crawl up into the trees. Both stages feed on moth larvae. The adults overwinter and are most numerous in the autumn.

83 *Silpha obscura*

Characteristics: L. 13–17 mm. General coloration matt black. Thorax with fine puncturation. Elytra each with three ridges, the spaces between them showing strong puncturation.

Distribution: Europe and Asia. Occurs in parts of England.

Habitat and habits: Found mainly in fields and meadows. This is an omnivorous species for, in addition to eating carrion, it also preys on snails, worms and insects, and may also cause damage by gnawing plants.

84 *Phosphuga atrata*

Characteristics: L. 10–16 mm. A very glossy black species. The spaces between the ridges on the elytra show fairly coarse puncturation.

Distribution: Widespread in Europe and northern Asia. Found in Britain.

Habitat and habit: Common in woodland and in damp, shady places, living under stones, moss and bark or in rotting timber. The adults are active at night when they attack snails; they also overwinter.

PSELAPHIDAE

This is a small family of small beetles less than 3 mm in length. They have foreshortened wings and club-like antennae, and usually long maxillary palps. The short elytra leave not more than five abdominal segments exposed. Most of the species live under leaves or moss, or sometimes in ants' nests. The family contains about 3,500 species of which about 40 occur in Britain.

85 *Pselaphus heisei*

Characteristics: L. 1.6–1.8 mm. Coloration brownish. Head and thorax longer than broad.

Distribution: Europe, including Scandinavia. Fairly common in England, less so in Scotland.

Habitat and habits: Found throughout the year in damp places near lakes and marshland, where the adults live under stones and moss, or often in refuse from haystacks.

86 *Claviger testaceus*

Characteristics: L. 2–2.5 mm. Coloration yellowish-red. Elytra without ridges, antennae short and thick.

The eyes are lacking and the mouthparts reduced. This and the related species *C. longicornis* are sometimes classified in a separate family, the Clavigeridae.

Distribution: Europe, extending into southern Norway, Sweden and Finland. Widespread in Britain.

Habitat and habits: Found mostly in open meadows warmed by the sun. This species lives in the nests of various ants, including the yellow ant, *Lasius flavus*. It secretes a substance attractive to the ants and in exchange is fed by them on regurgitated food.

STAPHYLINIDAE

This is a very large family with a total of at least 20,000 species, of which over 900 occur in Britain; they are known colloquially as rove beetles. Many are small, and in the present volume only some of the more striking forms will be described. They are characterized by the short elytra, which only cover the two basal abdominal segments, while the remaining segments are independently movable. Beneath the elytra there is usually a pair of well-developed wings which are folded in a very complicated way.

Many species can turn up the tip of the abdomen, and assume a threatening posture. Their habits are very variable, and some species, for instance, live in ants' nests, others in the nests of mammals and birds.

87 *Lomechusoides strumosa*

Characteristics: L. 5.5–6.5 mm. Quite easily distinguished from other staphylinids by the broad body. Coloration brownish with an oily sheen.

Distribution: Central and northern Europe. Rare in England (Gloucester, Surrey).

Habitat and habits: Lives in the nests of the blood-red ant, *Formica sanguinea*. Both the adults and the larvae are tended and fed by the ants, but they may also attack the eggs and larvae of the ants. A substance secreted by hair tufts on the abdomen is licked up by the ants.

88 *Astilbus canaliculatus*

Characteristics: L. 4–5 mm. A very slender beetle with long antennae and legs. General coloration yellow-brown, but the head and the rear of the abdomen are black.

Distribution: Europe and Siberia. Found locally in Britain.

Habitat and habits: Lives in a variety of habitats and may be found under stones, in moss and grass and sometimes in the vicinity of ants' nests.

89 *Tachyporus chrysomelinus*

Characteristics: L. 3–3.5 mm. The

head and thorax are broad in front, and both lack hairs. Abdomen shiny black and conical. Thorax and elytra yellowish-red, each of the latter with a black lateral stripe.

Distribution: Northern temperate regions of Europe and Asia. Common and widely distributed in Britain.

Habitat and habits: A widespread species found on very dry to slightly damp ground, under stones, among leaves and moss and sometimes, but accidentally, in ants' nests.

90 *Creophilus maxillosus*

Characteristics: L. 14–22 mm. Head and thorax hairless, except for short hairs on the sides. Antennae relatively short, elytra and abdomen with a pattern formed by grey and black hairs.

Distribution: Europe and northern Asia. Common in Britain.

Habitat and habits: Found from May to October on carrion, dung and rotting vegetation, where it preys upon other insects.

91 *Emus hirtus*

Characteristics: L. 18–28 mm. As in the preceding species the antennae are short (compare with no. 93).

Otherwise easily distinguishable by its size and the dense yellow, grey and black hairs.

Distribution: Southern and central Europe. Recorded as very rare in southern and eastern England.

Habitat and habits: Lives in warm, open fields, usually close to fresh cow or horse dung, but also on carrion and rotting fungi, where it feeds on other insects. Mainly active in May and June.

92 *Ontholestes murinus*

Characteristics: L. 14–19 mm. Body black with bronze iridescence and dense, felt-like golden-brown hairs. Legs black. A similar, slightly larger species, *O. tessellatus*, has yellowish-red legs.

Distribution: Europe and northern Asia. Common in Britain.

Habitat and habits: Found mainly on carrion and dung, this is an active sun-loving species which takes to the wing when disturbed. It feeds principally on insect larvae.

93 *Staphylinus caesareus*

Characteristics: L. 17–25 mm. The species of *Staphylinus*, like the three preceding forms, are very large but they can be distinguished by their long antennae. General coloration glossy black with reddish elytra and golden patches of hair on the abdomen and along the sides of the thorax. Legs reddish.

Distribution: Europe northwards to

southern and central Scandinavia. Locally distributed in Britain.

Habitat and habits: Found from May to August in open ground, usually on dung or carrion.

94 *Staphylinus olens*

Devil's Coach-horse

Characteristics: L. 20–32 mm. A very long species, easily distinguished by its size and matt black coloration.

Distribution: Europe. Widespread and common in Britain.

Habitat and habits: Primarily woodland, where it lives under leaves and moss, but is also found in more open places in areas of heathland and dune. Mainly active in May–September.

95 *Paederus litoralis*

Characteristics: L. 7.5–8.5 mm. Like many other species in the genus this beetle has a striking colour pattern. The head is black, the thorax and most of the abdomen are yellowish-red, while the elytra and the tip of the abdomen are black.

Distribution: Southern and central Europe. Common in England and Ireland.

Habitat and habits: Lives in damp places, near lakes, rivers and marshes, but sometimes also in drier areas, such as fields and along the edges of woodland. This is a predatory species, which sometimes overwinters in outhouses, often several individuals together.

96 *Stenus biguttatus*

Characteristics: L. 4.5–5.5 mm. A slender, black species with a yellow spot on each elytron. The eyes protrude laterally, and the labium, with its palps which can be shot out at lightning speed, is used to catch the prey (usually spring-tails).

Distribution: Europe and northern Asia. Common in England and Scotland.

Habitat and habits: Lives mainly on open, sandy areas near the banks of lakes and rivers, and on damp slopes. Like other species in its genus this beetle is particularly active when the sun is shining.

97 *Oxyporus rufus*

Characteristics: L. 7–11 mm. Body broadly built and arched, mainly yellowish-red, but the head, the rear part of the elytra and the last two abdominal segments are black.

Distribution: Europe and northern

Asia. Locally distributed in Britain.

Habitat and habits: A widespread beetle, found in woodland where both adults and larvae live in fungi, often several in the same one. Active in June–August.

98 *Bledius furcatus*

Characteristics: L. 5.5–7.5 mm. The thorax has a projecting horn and its front corners are very angular.

Distribution: Southern and central Europe. In Britain this species is restricted to parts of southern England and Wales.

Habitat and habits: Lives in low-lying dunes, often in marshy country. Like other species of *Bledius* this beetle digs tunnels in damp ground near fresh and salt water. Other species live in sandy or muddy areas. They feed on small green algae which grow on the sand grains. On warm days the adults are very active and readily take to the wing.

SCAPHIDIIDAE

This is a small family of small oval beetles with a convex body and broad, somewhat truncated elytra. Both the adults and the larvae live in fungi or in rotting timber. Five species have been recorded in Britain.

99 *Scaphidium quadrimaculatum*

Characteristics: L. 5–6 mm. A shiny, black species with two conspicuous reddish spots on each elytron. The

tibia are slender and slightly curved.

Distribution: Europe, extending northwards into southern Scandi-

navia. Locally distributed in Britain.

Habitat and habits: Lives in dead tree trunks, particularly in those

attacked by fungi and also in the bracket fungi (*Polyporus*) that grow out from the trunks of trees. This is a warmth-loving species.

LUCANIDAE

This family contains medium-sized to very large brownish or black beetles, some of which are iridescent. In many species the males have enormously elongated mandibles. The larvae, which are maggot-like, develop in rotting timber, and this takes several years. About 900 species have been described, mostly from the tropics, and 3 occur in Britain.

100 *Lucanus cervus*

Stag Beetle

Characteristics: L. 25–75 mm. A large, matt brownish-black species. In the male the mandibles and elytra are chestnut-brown. Males vary enormously in size. In large individuals the head is broader than the thorax and the mandibles proportionately large. Small individuals appear when the larval diet has been insufficient and these have much narrower heads. The female (no. 100a) has a completely normal head.

Distribution: Southern and central Europe. Found in England south of Lincolnshire.

Habitat and habits: Lives mainly in oak woods where the adults can be seen on trees sucking any exuding sap; they fly around in the evening and at night. The larvae live in hollow oaks or oak stumps, some-

times also in beech and ash. Their development takes four to six years.

101 *Dorcus parallelipipedus*

Lesser Stag Beetle

Characteristics: L. 19–32 mm. An oblong, very flat beetle with parallel sides. Mandibles slightly larger in the male than in the female. Coloration black, the female slightly paler than the male.

Distribution: Central and southern Europe. In England as far north as Yorkshire, and also in Ireland.

Habitat and habits: Commonly found in deciduous woods, where the larva develop in old rotting trees, or in stumps and branches that are lying on the ground. The adults, which are very sluggish, are seen from April to October. For the larva, see no. 451.

102 *Platycerus caraboides*

Characteristics: L. 10–14 mm. A flat, black, arched beetle, with bluish iridescence in the male, greenish in the female. Most of the body shows puncturation. There is little sexual dimorphism in the size of the mandibles.

Distribution: Europe, extending northwards into Scandinavia. Not found in Britain.

Habitat and habits: The larvae develop in the stumps of deciduous trees, particularly beech and oak. The adults emerge from the pupal stage in the autumn, but remain in the stumps until the following spring. They then come out and feed on leaves and buds, and can be seen flying around, usually when the sun is shining. Larval development takes three years.

103 *Ceruchus chrysomelinus*

Characteristics: L. 12–15 mm. An oblong shiny black species, that is only slightly convex. Antennae and palps reddish. Head and thorax with close puncturation.

Distribution: Central and northern Europe, extending into southern Sweden and Finland, but absent from Denmark, and also from Britain.

Habitat and habits: Lives in woodland, where the larvae may develop in the rotting timber of either deciduous or coniferous trees. The

adults are seen in the middle of summer.

104 *Sinodendron cylindricum*

Characteristics: L. 12–16 mm. An oblong, cylindrical black beetle. Head small, with a projecting up-turned horn in the male, and a small pointed knob in the female. Thorax with parallel sides, the front corners much produced.

Distribution: Europe, extending northwards into southern and central Scandinavia. Locally distributed in England, Scotland and Ireland.

Habitat and habits: Found in the rotting trunks and stumps of deciduous trees. The adults emerge from the pupal stage in the summer, but remain in the timber throughout the following winter. They come out in the spring and can be seen sucking tree sap and swarming at sunset, particularly in June. Larval development takes two years.

105 *Aesalus scarabaeoides*

Characteristics: L. 5–7 mm. A broad, short, brownish-black beetle. Upperside with fine brownish hairs, underside, antennae and legs red-brown.

Distribution: Europe, but not found in Britain.

Habitat and habits: The larvae and adults live on the rotting timber of various deciduous trees.

TROGIDAE

These are short, broad and very convex beetles with coarse sculpturing on the thorax. The abdomen has only five segments instead of six. The adults live in dry carrion, in old bones and hides, and in birds' nests. They are very sluggish and seldom take to the wing. About 150 species have been described of which 4 occur in Britain. These beetles are sometimes classified as a subfamily (Troginae) of the family Scarabaeidae.

106 *Trox hispidus*

Characteristics: L. 9–11 mm. A greyish-black beetle with brown antennae. The sides of the elytra carry long hairs.

Distribution: Europe and western Asia, extending northwards to

southern Sweden. This species has been recorded in Britain.

Habitat and habits: Lives in warm, dry places, and is sometimes seen in the dried remains of dead sheep during May and June.

GEOTRUPIDAE

These are mostly large black or bluish, often iridescent beetles; a few are brownish. The tibia of each front leg has powerful spines on its outer surface, an adaptation for digging. These beetles live mainly on dung. The adults dig deep burrows in the ground, in which they place balls of dung. An egg is laid on each ball and when it hatches the larva feeds on the dung. Some species use green vegetation as a larval food. About 300 species have been described, of which about 8 occur in Britain. They are sometimes regarded as a subfamily (Geotrupinae) of the family Scarabaeidae.

107 *Bolboceras unicornis*

Characteristics: L. 12–15 mm. General coloration red-brown to almost rust-red. The male has an immobile horn on the head. Thorax smooth, but the elytra are striped with fine puncturation.

Distribution: Central Europe and the Balkans. Absent from northern and western Europe, including Britain.

Habitat and habits: A warmth-loving species which spends the day deep down in the ground beneath

horse dung. During the evening and at night the adults fly around at a low altitude, particularly in warm weather, and they also stridulate. They are mainly seen in June–July.

108 *Odontaeus armiger*

Characteristics: L. 7–10 mm. An almost circular, very convex, shiny black beetle. Antennae and legs red-brown. The male's head has a thin erect horn, which is movable in relation to the rest of the head. Elytra with deep stripes and puncturation.

Distribution: Europe, extending northwards to southern Sweden. Not found in Britain.

Habitat and habits: Seen mainly in the evening when it flies quite low over the ground during warm weather. The larva is unknown.

109 *Typhaeus typhoeus*

Characteristics: L. 15–20 mm. A shiny black species. In the male the front of the thorax carries three projecting horns, of which the middle one is the shortest. The female has two small protuberances in the same position.

Distribution: Western Europe, extending north-eastwards to Denmark and southern Sweden. Locally distributed in Britain and Ireland.

Habitat and habits: Found especially in sheep dung. It lives most of the time beneath the dung or in burrows which it digs in the

ground, sometimes down to 1.5 m below the surface. It swarms in the evening.

110 *Geotrupes stercorarius*

Dor Beetle

Characteristics: L. 16–24 mm. Upperside black with bluish or greenish iridescence. Thorax smooth, but elytra with fine longitudinal stripes.

Distribution: Europe and western Asia. Common and widely distributed in Britain.

Habitat and habits: Lives in dung, particularly cow dung, in fields and meadows. It digs burrows, 30 cm deep, which it fills with dung. The adults are often seen swarming in the evening, while searching for new breeding places. For the larva, see no. 452.

111 *Geotrupes vernalis*

Characteristics: L. 14–20 mm. Upperside shiny, iridescent blue or green. Elytra with fine puncturation, but no true stripes.

Distribution: Europe including southern and central Scandinavia. Widely distributed in Britain, but only locally.

Habitat and habits: Lives primarily in sunny, sandy places, but is sometimes seen in woodland. Like its relatives it lives in dung, and also in carrion and rotting fungi. It likes to fly by day.

112 *Lethrus apterus*

Characteristics: L. 10–20 mm. A black, very matt species with a

large head. The mandibles are large and in the male each has a horn on its underside. The front corners of the thorax project. Elytra short, almost triangular, with indistinct stripes.

Distribution: Central and south-

east Europe. Not found in Britain.

Habitat and habits: Lives in dry, steppe-like localities, where it digs deep burrows, which it fills with green plant shoots. During the spring this species may cause damage in vineyards.

SCARABAEIDAE (Scarabs)

The scarabs form an enormous group of somewhat variable beetles, most of which are very large, with a convex body. Normally the elytra do not cover the abdomen. The larvae live in rotting timber, among roots in the ground, in decaying vegetation or in dung. The family contains over 19,000 species, mostly tropical. About 80 occur in Britain.

113 *Oryctes nasicornis*

Characteristics: L. 25–39 mm. A large, shiny chestnut-brown species. In the male the head carries a large, backward-directed horn, while the thorax has a raised ridge with three tooth-like projections. The female (113a) has a small knob on the head.

Distribution: Europe, including southern Scandinavia. Not found in Britain.

Habitat and habits: Particularly sawmills, the larva developing in rotting bark and sawdust, etc. In the south it also lives in rotting timber from deciduous trees, and this is, of course, the original habitat of the species. The adults fly around during the evening. Larval development takes several years.

114 *Rhizotrogus aestivus*

Characteristics: L. 12–18 mm. A yellow-brown species, usually with a dark central line on the thorax. The front and sides of the thorax have long hairs. The elytra are darker at the sides and along the central suture. The tip of the abdomen is not hairy.

Distribution: Southern and central Europe. Absent from Denmark, Scandinavia and Britain.

Habitat and habits: Seen in open, grassy places from April to June, the adults flying during the evening. The larvae live in the ground among grass roots.

115 *Amphimallon solstitialis*

Characteristics: L. 14–18 mm. A slender, yellow-brown beetle, which somewhat resembles the

preceding species, but differs in having only nine antennal joints, and hairs on the tip of the abdomen.

Distribution: Europe and eastwards to Mongolia. Distributed locally in England.

Habitat and habits: Occurs in dry, sunny places. During June and July the adults can be seen in swarms around free-standing deciduous trees; they also feed on the leaves of these trees. The larvae live in the ground where they feed on roots and sometimes cause damage to crops.

116 *Melolontha hippocastani*

Characteristics: L. 20–26 mm. General coloration brownish, the thorax distinctly darker than the rest. Elytra with a black border, at least in front.

Distribution: Europe except in the south. Locally distributed in Britain.

Habitat and habits: Lives in sandy places where the adults are active in June. The larvae gnaw roots and may cause serious damage in nurseries growing young conifers. Larval development takes four to five years.

117 *Melolontha melolontha* **Cockchafer**

Characteristics: L. 22–30 mm. Similar to the preceding species, but the outer edges of the elytra are not darker than the rest, and the tip of the abdomen (the pygi-

dium) is longer and tapers more gradually.

Distribution: Europe, southwards to the Balkans and Caucasus. Widespread and common in Britain.

Habitat and habits: During May and June the adults feed on the foliage of various deciduous trees, particularly oak and beech. They swarm in the evening. The females lay eggs in the ground and the larvae live for three years among the roots of various plants. They may cause serious damage by their gnawing. They pupate during the fourth summer and the adult or imago emerges, but remains in the ground until the following spring. For the larva, see no. 453.

118 *Polyphylla fullo*

Characteristics: L. 25–36 mm. A large, dark brown species with a pattern of irregular white spots.

Distribution: Central and southern Europe. Absent from Denmark, Scandinavia and Britain.

Habitat and habits: Occurs in low-lying country, particularly in sandy areas with dunes. The adults, which are seen in July, feed on pine. The larvae gnaw the roots of various plants on the dunes.

119 *Anoxia villosa*

Characteristics: L. 23–29 mm. Smaller and narrower than the preceding species. Ground coloration yellow-brown to red-brown, the underside somewhat darker.

Distribution: Central and southern

Europe, extending into south-western Asia. Not found in Britain.

Habitat and habits: This is a warmth-loving species which prefers sandy, grassy places. The males fly very rapidly, and the larvae gnaw roots.

120 *Anomala dubia*

Characteristics: L. 12–15 mm. A broad and convex species. Head and thorax iridescent green or blue. Elytra usually brownish-yellow with slight greenish iridescence. However, the coloration varies considerably.

Distribution: Europe, extending northwards to central and southern Scandinavia. Locally distributed in Britain as the variety *aenea*.

Habitat and habits: Commonly found in sandy areas, including dunes. The males fly around by day, looking for the females who sit on the sand. The larvae gnaw roots and their development takes two years.

121 *Phyllopertha horticola*

Garden Chafer

Characteristics: L. 8–12 mm. Body flatter and with more hairs than in the preceding species. Upperside iridescent greenish, bluish or greenish-black. Elytra yellow-brown or red-brown, with conspicuous stripes.

Distribution: Europe and northern Asia. Common in Britain.

Habitat and habits: Found mainly in open, very dry, sunny places. During the day in June and July

the adults fly around and feed on the leaves, buds and fruits of deciduous trees and fruit, sometimes causing damage to apple trees, for instance. The larvae, which live in the ground for a year sometimes damage cereals and other grasses by gnawing the roots.

122 *Anisoplia segetum*

Characteristics: L. 10–12 mm. Head and thorax iridescent green to blue. Elytra yellow-brown or reddish. Head and thorax with a grey powder and dense pale hairs.

Distribution: Central and southern Europe, Asia Minor and the Caucasus. Not found in Britain.

Habitat and habits: Low-lying country, where the adults may occur in large numbers on grass, corn and bushes during May and June. They sometimes cause serious damage. The larvae live in the ground and feed, perhaps exclusively, on rotting vegetation.

123 *Anisoplia cyathigera*

Characteristics: L. 11–13.5 mm. Characterized by the pattern of yellow and black markings on the elytra. Head and thorax dark, the latter with dense, short hairs.

Distribution: Southern and south-central Europe, extending eastwards to Armenia. Not found in Britain.

Habitat and habits: Occurs in the same type of habitat as the preceding species, and has the same general habits.

124 *Hoplia farinosa*

Characteristics: L. 9–11 mm. Head and thorax black, elytra pale or dark red-brown, often with golden-green iridescence. The whole body is covered with fine scales. Back feet with a long curved claw which is characteristic of the genus *Hoplia*.

Distribution: Central Europe, extending northwards to Denmark and southernmost Sweden. Not found in Britain.

Habitat and habits: Lives particularly in coastal meadows, where the adults swarm in July and are sometimes seen on flowers. The larvae live in the ground feeding on grass roots, often causing damage to crops. Their development takes two years.

125 *Hoplia philanthus*

Characteristics: L. 8–9 mm. Ground coloration black to brownish-black, the elytra somewhat paler than the rest. As in other species of *Hoplia* the body is covered with pale scales.

Distribution: Central and western Europe, but not in Scandinavia. Locally distributed in England and Scotland.

Habitat and habits: Often found in hilly regions. The adults swarm on mornings in June and July, and are often seen flying around willow trees in the vicinity of water. The larvae live in the ground in damp meadows and their development takes two years.

126 *Valgus hemipterus*

Characteristics: L. 7–9 mm. Body black, with a pattern formed by pale scales. Characterized by the short elytra.

Distribution: Central and southern Europe, extending northwards to Holland and Denmark. Not found in Britain.

Habitat and habits: The adults, which spend the winter in the pupal case, are active in June–July. The larvae live in rotting timber (hardwood), and their development takes one year.

127 *Osmoderma eremita*

Characteristics: L. 24–30 mm. A black or brownish-black species with coppery iridescence. Each elytron has a projecting bulge at the front. Thorax with a central furrow.

Distribution: Europe, but not found in Britain.

Habitat and habits: The adults are mostly seen during the first half of August; they have a strong smell of Russian leather. The larvae live in hollow trunks of oak and other deciduous trees. Their development takes several years.

128 *Gnorimus nobilis*

Characteristics: L. 14–18 mm. Somewhat similar to no. 132, but the thorax is considerably narrower and separated from the elytra. Ground coloration iridescent green, the elytra with transverse wrinkles and whitish spots.

Distribution: Europe extending northwards to south-western Scandinavia. Rarely found in southern England.

Habitat and habits: The adults swarm in warm, sunny weather in July and visit flowers of, for example, elder and umbellifers. They quickly take to the wing if disturbed. The larvae develop in the rotting timber of deciduous trees, particularly oak and fruit trees.

129 *Trichius fasciatus*

Characteristics: L. 10–13 mm. Head, thorax and the tip of the abdomen ochre-brown, with dense hairs. Elytra yellowish-orange, with three very variable, transverse black bars.

Distribution: Europe and northern Asia. Found in a few areas in England, Wales and Scotland.

Habitat and habits: The adults can be seen on flowers, especially of wild thyme, in June and July. The larvae live in rotting trunks and stumps of deciduous trees, such as birch and elder.

130 *Epicometis hirta*

Characteristics: L. 8–12 mm. Ground coloration matt black, the elytra with varying whitish markings and densely covered with long hairs.

Distribution: Central Europe, but absent from Scandinavia and western Europe, including Britain.

Habitat and habits: Adults are

mostly seen in early spring, in dry, steppe-like habitats. They visit yellow flowers in search of pollen. The larvae live in the ground.

131 *Oxythyrea funesta*

Characteristics: L. 8–12 mm. Similar to the preceding species, but less hairy. Ground coloration shiny black, with coppery iridescence. Thorax and elytra with pale markings.

Distribution: Southern parts of central Europe. Not found in Britain.

Habitat and habits: The adults are seen from May to June on flowering composites and umbellifers.

132 *Cetonia aurata*

Rose Chafer

Characteristics: L. 14–20 mm. Body broad and somewhat flattened. Upperside with strong greenish iridescence. Underside coppery-red. Elytra with whitish transverse markings.

Distribution: Europe and northern Asia, in some parts extending northwards to the Arctic Circle. Locally distributed throughout Britain and Ireland.

Habitat and habits: The adults can be seen, particularly in June to August, in warm sunny places in woodland and scrub, where they fly around visiting various flowers, including roses. The larvae live in the rotting timber of old trees, and also among roots and under decaying vegetation.

133 *Liocola marmorata*

Characteristics: L. 19–25 mm. Considerably larger than the preceding species, and with darker, almost bronze iridescence. Elytra with numerous dark markings.

Distribution: Europe and northern Asia, extending northwards to southern Scandinavia. Not found in Britain.

Habitat and habits: Lives in woodland where the adults can be seen in June and July, often sitting on the trunks of oak, where sap is exuded. The larvae live in rotting hardwoods, e.g. oak and willow.

134 *Potosia aeruginosa*

Characteristics: L. 22–28 mm. Body uniform golden-green, completely smooth and very shiny.

Distribution: Southern and central Europe. Not found in Britain.

Habitat and habits: Adults can be seen in May and June on flowering shrubs and on sap exuding from trees, particularly of oak. The larvae live in hollow oak trees, and their development takes three years.

135 *Potosia cuprea*

Characteristics: L. 14–23 mm. Considerably smaller than the preceding species, and differs from no. 132 in having the elytra narrower at the back. Thorax and elytra with varying amounts of white spots.

Distribution: Europe, including Scandinavia. The subspecies

metallica occurs locally in England and Scotland.

Habitat and habits: Found in wooded areas, where the adults can be seen in sunny places during June and July, visiting various flowers. The larvae live in ants' nests; particularly those of the genus *Formica*, and feed on the materials with which the nest is constructed.

136 *Serica brunnea*

Characteristics: L. 8–10 mm. A matt, yellow-brown beetle. Elytra with conspicuous stripes, and becoming broader at the rear. Antennae with nine joints.

Distribution: Europe, extending northwards into southern and central parts of Scandinavia. Widely distributed in Britain.

Habitat and habits: Found mainly in very sandy places. The adults swarm during evenings in July and August, and are often attracted to the light. The larvae live in the ground and feed on roots, frequently causing damage in nurseries. Their development takes two years.

137 *Maladera holosericea*

Characteristics: L. 6–8 mm. Closely related to the preceding species but with a slightly broader, more oval body. General coloration brownish-black to red-brown. Antennae with ten joints.

Distribution: Southern and central Europe, extending northwards to

Denmark and southern Sweden. Not found in Britain.

Habitat and habits: Adults can be seen, sometimes as early as April, on dunes with mixed sand and gravel. The larvae live in the ground and feed on roots and rotting vegetation.

138 *Homaloplia ruricola*

Characteristics: L. 5–7.5 mm. Closely related to the two preceding species. Head and thorax black, elytra brown with black suture and edges.

Distribution: Central Europe. Found only locally in southern England, northwards to Norfolk.

Habitat and habits: Adults live in warm places with scattered vegetation, and are often seen flying around in the middle of the day when the sun is shining. The larvae live in the ground and feed on roots.

139 *Psammobius sulcicollis*

Characteristics: L. 2.6–4 mm. Body brownish-black and only slightly shiny. Thorax with five conspicuous transverse furrows. Elytra with numerous stripes.

Distribution: Europe, extending northwards into southern Scandinavia. Locally distributed in England and Scotland.

Habitat and habits: Occurs in sandy or gravelly places, such as dunes and gravel pits. The adults are found around the roots of plants or under dry dung, particularly in

early and late summer. They spend the winter under vegetation. Both adults and larvae feed on rotting vegetation.

140 *Aphodius haemorrhoidalis*

Characteristics: 3.5–5 mm. A shiny black species with reddish markings at the tips of the elytra.

Distribution: Europe and northern Asia, extending northwards into southern Scandinavia. Widespread and common in England.

Habitat and habits: Adults are active in May to August. As in most species of *Aphodius* both adults and larvae live in dung, this species usually in the dung of cattle or deer. The fully-grown larvae overwinter.

141 *Aphodius fimetarius*

Characteristics: L. 5–8 mm. Elytra red-brown, with fairly fine longitudinal ridges.

Distribution: Europe and northern Asia, including Scandinavia. Widespread and common in Britain.

Habitat and habits: This species, which can be found at most times of year, lives in almost any type of dung. The adults can sometimes be seen flying around on warm days, usually in the late afternoon. There are probably two generations in the year.

142 *Aphodius inquinatus*

Characteristics: L. 3.5–5.5 mm. This beetle represents a large group of

Aphodius species which have pale brownish elytra with small dark brown or black markings. These species are difficult to distinguish. Also known as *A. distinctus*.

Distribution: Europe and northern Asia. Found locally in England and Scotland.

Habitat and habits: Occurs more or less throughout the year in any type of dung, and often in large numbers. It can also live in compost and material washed ashore. There are two generations in the year, and the species overwinters in the imago stage.

143 *Sisyphus schaefferi*

Characteristics: L. 6.5–12 mm. A very characteristic matt black to brownish-black species, the whole body covered with fine yellow to dark brown hairs. Body very convex and almost circular. Back legs long and curved. Elytra short.

Distribution: Southern and central Europe. Not found in Britain.

Habitat and habits: Belongs to the well-known group of scarab beetles which roll balls of dung. It lives in very warm places and prefers sheep dung, from which it makes balls which it trundles to a sheltered spot before consuming them. Other balls of dung are placed in underground chambers where they provide food for the larvae.

144 *Onthophagus vacca*

Characteristics: L. 7–13 mm. Head and thorax dark green with slight coppery iridescence. Elytra yellowish-red with fine, small greenish spots.

Distribution: Southern and central Europe, northern Africa and eastwards to Iran. Locally distributed in southern England.

Habitat and habits: Found in high, sunny areas, usually living in dung. The adults are seen mostly in May and June. The larvae live in a small chamber 4–5 cm below the surface. They feed on small scraps of dung placed there by the adults before the eggs were laid.

145 *Copris lunaris*

Characteristics: L. 17–24 mm. A shiny black, very convex species. The head carries an erect horn, which is longer in the male than in the female. The thorax has characteristic pointed projections at each front corner.

Distribution: Europe, extending northwards into southern Scandinavia. Very locally distributed in southern England.

Habitat and habits: The adults are seen in May and June on sunny banks with sandy soil, where they live in cow dung. The male and female dig an oblong hole 15–30 cm below surface and place in it 7–8 pear-shaped clumps of dung. The female lays an egg in each clump and then guards the brood.

DASCILLIDAE

These are small to medium-sized beetles with long, thread-like antennae and usually a protruding edge to the thorax. The adults are seen mostly on flowers. The larvae live in the ground and resemble those of the scarabs. The family contains about 200 species, of which 2 occur in Britain.

146 *Dascillus cervinus*

Characteristics: L. 10–11 mm. Ground coloration dark, the whole body covered with fine, dense hairs, which are greyish in the male, yellowish-brown in the female. The longitudinal stripes are extremely fine, with close puncturation.

Distribution: Europe, extending northwards into southern Scandinavia. Locally distributed in Britain.

Habitat and habits: Adults are seen in June and July on flowering shrubs and umbellifers. The larvae live in the driest parts of meadows. They can be found under tussocks, where they feed on the roots of the grasses. When there is a large population of these larvae whole areas of grassland may wither. Larval development probably takes two years.

HELODIDAE

These are small, yellow-brown beetles with a very soft integument which occur in damp habitats. They are characterized by the broad, flat body and the very long whip-like antennae. The larvae are aquatic or live in damp soil. The family contains a total of about 340 species, of which 13 occur in Britain.

147 *Helodes minuta*

Characteristics: L. 4.5–6 mm. The whole of the body is covered with pale hairs. Elytra yellowish-red, often more or less darkened, particularly towards the tips.

Distribution: Europe, including most of Scandinavia. Common in Britain.

Habitat and habits: Adults are in some places very abundant in damp meadows and in the vicinity

of lakes, where they can often be seen visiting flowers. The larvae live in standing fresh waters.

148 *Cyphon variabilis*

Characteristics: L. 2.5–3 mm. Head usually black, thorax brownish-red, elytra yellow-brown, with parallel sides.

Distribution: Europe and northern

Asia, including Scandinavia. Widespread and fairly common in Britain.

Habitat and habits: Adults live close to fresh and brackish waters and crawl about among reeds and other plants. They also fly around and can sometimes be seen at quite a distance from the nearest water. The larvae are aquatic.

BYRRHIDAE

The members of this family have a short, oval or round body. They have a characteristic method of playing possum when disturbed, with the antennae and legs held in close to the body. The adult beetles live on the ground under stones and moss. The larvae, which live in the ground, are of the scarab type. Their thorax is heavily sculptured and sclerotized. The family contains about 270 species, of which 11 occur in Britain.

149 *Cytilus sericeus*

Characteristics: L. 4.5–5.5 mm. A black beetle with coppery-red iridescence. Elytra with brown and black hair markings.

Distribution: Europe, including Scandinavia, and northern Asia. Locally distributed in Britain.

Habitat and habits: Found mainly among moss in very damp places, and in some areas seen throughout the year.

red-brown beetle, the elytra sometimes with paler markings.

Distribution: Europe and parts of northern Asia, eastwards to Japan. Widespread and common in Britain.

Habitat and habits: Commonly found in sandy areas, living under stones and moss, sometimes on paths and walls, and most abundant in the spring. The species spends the winter in the adult or imago stage.

150 *Byrrhus pilula*

Characteristics: L. 7.5–11 mm. A short, oval, very convex, brown to

GEORYSSIDAE

This is a very small family containing only 30 species throughout the world, of which 1 occurs in Britain.

151 *Georyssus crenulatus*

Characteristics: L. 1.5–2.1 mm. Upperside shiny black. Thorax with granules, particularly in front and along the sides. Elytra with rows of coarse puncturation.

Distribution: Europe, including

the southern part of Scandinavia. Locally distributed in Britain.

Habitat and habits: Found along the banks of lakes and rivers, usually living in mud and among decaying vegetation, and seen most abundantly in May and June. The whole insect is often covered with mud.

DRYOPIDAE

This is another small family, containing oblong beetles which show all the transitional stages between a terrestrial and an aquatic way of life. The body is covered with short, densely packed hairs. The larvae live in damp soil and feed mainly on waterlogged timber.

152 *Dryops auriculatus*

Characteristics: L. 4.5–5.2 mm. An oblong, brownish beetle. Elytra with only a trace of longitudinal stripes, but with densely packed pale yellow-grey hairs.

Distribution: Europe and northern Asia. Widespread and common in Britain.

Habitat and habits: Lives in or close to standing fresh waters, and probably also in brackish waters. They can be found in mud or among the roots of water plants, and sometimes in large numbers among material that has been washed ashore.

153 *Potamophilus acuminatus*

Characteristics: L. 6.5–8.5 mm. This is an oblong beetle and one of the larger species in the family. General coloration brownish-black, with brownish-grey hairs. Elytra striped, with conspicuous puncturation, and each ending in a sharp point.

Distribution: Central Europe and Asia Minor, but absent from Denmark, Scandinavia and Britain.

Habitat and habits: Larvae live in timber submerged in rivers. The adults can be found in the same places, but they also emerge and fly around.

ELMIDAE

In contrast to the preceding family, in the members of the family Elmidae the body is hairless or merely has fine, scattered hairs. All the species are aquatic, living particularly in running water, where they are found under stones and among moss. The larvae, which somewhat resemble woodlice, are adapted for climbing among stones and plant stems in running waters. The family has several hundred species, of which only 11 occur in Britain. They are often regarded as a subfamily (Elminae) of the family Dryopidae.

154 *Riolus cupreus*

Characteristics: L. 1.5–1.7 mm. General coloration black with bronze iridescence. Species of the genus *Riolus* are distinguished from other members of the family Elmidae by having a completely smooth thorax, without stripes or granules.

Distribution: Central Europe, extending northwards to Denmark

and southern Sweden. Found only rarely in England and parts of Scotland.

Habitat and habits: Lives in rivers, streams and large inland lakes, but only in places with clean water and a firm bottom. On warm summer evenings the adults emerge from the water and fly around, searching for fresh places in which to live.

HETEROCERIDAE

This family contains small, oblong beetles with almost parallel sides to the body. The head, which has large mandibles, and the whole of the body are covered with dense hairs. Each front leg has a broad tibia, equipped with long, powerful spines. These beetles live in galleries which they make in the mud along the banks of fresh or salt waters, and their presence is betrayed by the small mounds formed at the surface by these digging activities. The larvae also live in galleries in the soil. They have a broad thorax and a narrow abdomen, and they feed on microscopic algae. The family contains about 500 species, of which 9 occur in Britain.

155 *Heterocerus fenestratus*

Characteristics: L. 3-4.5 mm. Thorax black, with narrow, yellow edges. Elytra blackish, with a conspicuous yellow pattern formed by a narrow border and various oblong markings.

Distribution: Europe, including southern Scandinavia, and northern Asia. Locally distributed in southern England.

Habitat and habits: Found mainly on muddy or sandy bottoms in fresh waters, both standing and running, and there are often several together in the one locality. On warm evenings in the summer the adults emerge from the burrows and fly around.

BUPRESTIDAE

This is a mainly tropical family of beetles, which frequently have a very slender body, pointed at the rear and often brightly coloured. The adults are active on warm days and can be seen on flowers or on tree trunks. They are very shy and take to the wing at the least disturbance. The larvae live in very broad, flat tunnels under the bark of trees or among the roots, some also in the stems of herbaceous plants. The larvae are characterized by the small head and the large thorax, while the remainder of the body is very narrow. The family contains not less than 15,000 species, of which only about 12 occur in Britain.

156 *Chalcophora mariana*

Characteristics: L. 24-30 mm. General coloration brownish with bronze iridescence. Thorax and elytra with broad longitudinal stripes and furrows.

Distribution: Europe, the Caucasus and northern Asia. Not found in Britain.

Habitat and habits: Larvae live under the bark of dead pine trunks. The adults are active from May to October, and they can often be seen flying very rapidly

in sunny weather. They are only exceptionally found in large numbers in pine forests.

157 *Capnodes tenebrionis*

Characteristics: L. 22-25 mm. A matt species with a much sclerotized integument. Thorax whitish-grey with small black markings. Elytra black, with small whitish dots.

Distribution: Central and southern Europe. Not found in Britain.

Habitat and habits: Typically found

in very warm localities. The larvae live in the old stems of sloe (*Prunus spinosa*) and other species of *Prunus*. The adults can be seen in summer on the flowers of various plants.

158 *Dicerca alni*

Characteristics: L. 16–20 mm. A shiny, brownish-copper species. The elytra are very narrow with the tips curved slightly outwards, and they show close puncturation.

Distribution: Europe, the Caucasus and Asia Minor. Not found in Britain.

Habitat and habits: The larvae live in deciduous trees, including alder and oak. During the summer the adults can often be seen on tree trunks.

159 *Lampra rutilans*

Characteristics: L. 12–15 mm. Upperside greenish, greenish-blue or golden-green. Elytra with irregularly arranged black markings, their sides more or less reddish.

Distribution: Europe, the Caucasus and northern Africa. Not found in Britain.

Habitat and habits: Larvae develop under the bark and in the timber of old dying lime trees, which may often be seriously damaged. The adults can be seen flying rapidly around the trees on warm summer days, particularly in May, June and July.

160 *Eurythyrea austriaca*

Characteristics: L. 15–23 mm. An iridescent green species, the elytra

often with a bluish or purplish sheen. The underside of the body is shiny and copper-coloured.

Distribution: Central and southern Europe, the Caucasus and northern Africa. Not found in Britain.

Habitat and habits: Found in old conifer forests, where the larvae live in the stems of pine and spruce. The adults are always seen singly in early summer.

161 *Buprestis rustica*

Characteristics: L. 12–18 mm. General coloration metallic green or bluish, sometimes with coppery iridescence.

Distribution: Europe, northern Asia, the Caucasus and northern Africa. Not found in Britain.

Habitat and habits: Conifer trees, where the larvae live in the rotting trunks and stumps. The adults can be seen on trees, and they take to the wing very readily during warm weather.

162 *Buprestis octoguttata*

Characteristics: L. 9–15 mm. An iridescent blue or green beetle. Thorax with yellow sides, elytra with four pairs of yellow markings.

Distribution: Europe, northern Asia, the Caucasus and northern Africa. Not found in Britain.

Habitat and habits: Found mainly in conifer forests, where the larvae develop principally in trees that are six to eight years old. This is a rare species.

163 *Melanophila picta*

Characteristics: L. 9–12.5 mm. A dark brownish, slightly iridescent beetle with a varying number of small yellow markings.

Distribution: Central and southern Europe. Not found in Britain.

Habitat and habits: Larvae develop in the timber of poplar and willows. The adults are active from May to July.

164 *Phaenops cyanea*

Characteristics: L. 8–11 mm. Upperside greenish-blue or blue, the head with fine, scattered puncturation.

Distribution: Europe, northern Asia, the Caucasus and northern Africa. Not found in Britain.

Habitat and habits: A warmth-loving species, associated with large conifer forests at low altitudes. The larvae develop in pine trees that are ten to twenty years old, but they may also attack younger trees and cause some damage. The adults are on the wing from June to August.

165 *Anthaxia candens*

Characteristics: L. 8–10 mm. Head and thorax bluish with a central green stripe, which continues down along the middle suture of the elytra. The remainder of the elytra purplish-red with a large, bluish central marking. The legs are blue.

Distribution: Central and southern Europe. Not found in Britain.

Habitat and habits: Larvae develop in the damaged trunks and branches of cherry. The adults overwinter and usually appear in May, about the time the cherry trees come into flower.

166 *Anthaxia nitidula*

Characteristics: L. 5–7 mm. In this species there is a considerable difference in coloration between the sexes. The male is a uniform green, whereas the female has a purplish-red head and thorax, and the elytra are often blue instead of green. The thorax often has two black markings in front.

Distribution: Central and southern Europe. Very rare in Britain.

Habitat and habits: Adults appear from April to June on flowers of wild rose and hawthorn, and on herbaceous plants with yellow flowers. The larvae develop in the stems of the first two named plants. This is a common beetle in warm areas.

167 *Anthaxia salicis*

Characteristics: L. 6–8 mm. Very similar to no. 165, but smaller, the head and thorax uniform blue, and the dark area on the elytra is restricted to the extreme front.

Distribution: Central and southern Europe, and northern Africa. Not found in Britain.

Habitat and habits: Occurs in open, sunny habitats with deciduous trees, in which the larvae develop. The adults are seen mainly from

May to July on various yellow flowers.

168 *Anthaxia morio*

Characteristics: L. 7–9.5 mm. A uniform dark brownish species with slight iridescence. Head with very long, whitish hairs. The related *A. quadripunctata* is smaller, with no hairs on the head, and its thorax has four pits arranged transversely.

Distribution: Europe, only locally in the southern parts of Norway and Sweden, and absent from Britain.

Habitat and habits: A woodland species whose larvae develop in young trees. The adults can be seen particularly on flowers in woodland clearings.

169 *Ptosima undecimmaculata*

Characteristics: L. 7–13 mm. Body cylindrical, general coloration black with slight bluish iridescence, and with variously shaped orange markings on the head, thorax and elytra.

Distribution: Central and southern Europe, eastwards to the Caucasus. Not found in Britain.

Habitat and habits: A warmth-loving species. The larvae develop in the branches and trunks of various species of *Prunus*. The adults are seen in the spring on the leaves of bushes and trees. They do not take to the wing very readily.

170 *Chrysobothris affinis*

Characteristics: L. 10–14 mm. General coloration brownish copper, the head greenish. Each elytron has three golden markings. Underside copper-red, the ventral sternites greenish.

Distribution: Europe, including southern Norway and Sweden. Not found in Britain.

Habitat and habits: Adults are seen in June–August on tree trunks, particularly on those in a sunny position facing south and that have been damaged. The larvae develop in a variety of deciduous trees, and they may cause some damage. For the larva, see no. 454.

171 *Agrilus biguttatus*

Characteristics: L. 9–10 mm. Like other members of the genus *Agrilus* this is a very slender beetle. Ground coloration dark green or blue, the rear of each elytron with a powdery-white spot.

Distribution: Europe, the Caucasus and northern Africa. Very rare in southern England.

Habitat and habits: Found particularly in oak woods, where the larvae develop under the bark, either of old trees or of tree stumps.

172 *Agrilus viridis*

Characteristics: L. 6–9 mm. Coloration somewhat variable, but normally green, blue or copper-coloured, and always without markings.

Distribution: Europe, extending northwards to Lapland. Only rarely found in Britain.

Habitat and habits: Adults are seen in June–July on the leaves of various deciduous trees, often of willow. The larvae develop in the trunks and branches.

173 *Trachys minuta*

Characteristics: L. 3–3.5 mm. A short, broad species. Coloration black with a metallic sheen, the elytra with a pattern of paler stripes.

Distribution: Europe, the Caucasus and northern Asia. Locally distributed in southern England.

Habitat and habits: Larvae make channels in the leaves of various deciduous trees, particularly hazel

and willow. The position of the channels can be recognized by a small black spot, formed by a cement which the female deposits over the egg when it is laid.

174 *Cylindromorphus filum*

Characteristics: L. 3.3–5 mm. A small, very narrow species with almost parallel sides. General coloration dark greenish to brownish-green. Elytra with distinct puncturation.

Distribution: Central Europe, southwards to the Caucasus. Absent from northern Europe and Britain.

Habitat and habits: Found in warm, steppe country and along the edges of woodland. The larvae develop in low, herbaceous plants, quite abundantly in some localities.

EUCNEMIDAE

This family contains a number of mainly tropical beetles, externally very similar to the Elateridae, to which they are closely related. They differ, among other things, in having the clypeus (a plate over the mouth) much elongated. In the larvae, which live and develop in rotting timber, the head is much reduced and the legs are absent. The family contains about 1,000 species, of which 3 occur in Britain.

175 *Isorhipis melasoides*

Characteristics: L. 9–11 mm. Body cylindrical, head and thorax brownish-black, the elytra red-brown. The tips of the antennae are comb-like.

Distribution: Central and southern Europe, absent from Scandinavia. Not found in Britain.

Habitat and habits: Both adults and larvae can be found under the bark and in the rotting timber of beech. On warm days in June the adults often swarm around the breeding places.

May to July on various yellow flowers.

168 *Anthaxia morio*

Characteristics: L. 7–9.5 mm. A uniform dark brownish species with slight iridescence. Head with very long, whitish hairs. The related *A. quadripunctata* is smaller, with no hairs on the head, and its thorax has four pits arranged transversely.

Distribution: Europe, only locally in the southern parts of Norway and Sweden, and absent from Britain.

Habitat and habits: A woodland species whose larvae develop in young trees. The adults can be seen particularly on flowers in woodland clearings.

169 *Ptosima undecimmaculata*

Characteristics: L. 7–13 mm. Body cylindrical, general coloration black with slight bluish iridescence, and with variously shaped orange markings on the head, thorax and elytra.

Distribution: Central and southern Europe, eastwards to the Caucasus. Not found in Britain.

Habitat and habits: A warmth-loving species. The larvae develop in the branches and trunks of various species of *Prunus*. The adults are seen in the spring on the leaves of bushes and trees. They do not take to the wing very readily.

170 *Chrysobothris affinis*

Characteristics: L. 10–14 mm. General coloration brownish copper, the head greenish. Each elytron has three golden markings. Underside copper-red, the ventral sternites greenish.

Distribution: Europe, including southern Norway and Sweden. Not found in Britain.

Habitat and habits: Adults are seen in June–August on tree trunks, particularly on those in a sunny position facing south and that have been damaged. The larvae develop in a variety of deciduous trees, and they may cause some damage. For the larva, see no. 454.

171 *Agrilus biguttatus*

Characteristics: L. 9–10 mm. Like other members of the genus *Agrilus* this is a very slender beetle. Ground coloration dark green or blue, the rear of each elytron with a powdery-white spot.

Distribution: Europe, the Caucasus and northern Africa. Very rare in southern England.

Habitat and habits: Found particularly in oak woods, where the larvae develop under the bark, either of old trees or of tree stumps.

172 *Agrilus viridis*

Characteristics: L. 6–9 mm. Coloration somewhat variable, but normally green, blue or copper-coloured, and always without markings.

Distribution: Europe, extending northwards to Lapland. Only rarely found in Britain.

Habitat and habits: Adults are seen in June–July on the leaves of various deciduous trees, often of sallow. The larvae develop in the trunks and branches.

173 *Trachys minuta*

Characteristics: L. 3–3.5 mm. A short, broad species. Coloration black with a metallic sheen, the elytra with a pattern of paler stripes.

Distribution: Europe, the Caucasus and northern Asia. Locally distributed in southern England.

Habitat and habits: Larvae make channels in the leaves of various deciduous trees, particularly hazel

and willow. The position of the channels can be recognized by a small black spot, formed by a cement which the female deposits over the egg when it is laid.

174 *Cylindromorphus filum*

Characteristics: L. 3.3–5 mm. A small, very narrow species with almost parallel sides. General coloration dark greenish to brownish-green. Elytra with distinct puncturation.

Distribution: Central Europe, southwards to the Caucasus. Absent from northern Europe and Britain.

Habitat and habits: Found in warm, steppe country and along the edges of woodland. The larvae develop in low, herbaceous plants, quite abundantly in some localities.

EUCNEMIDAE

This family contains a number of mainly tropical beetles, externally very similar to the Elateridae, to which they are closely related. They differ, among other things, in having the clypeus (a plate over the mouth) much elongated. In the larvae, which live and develop in rotting timber, the head is much reduced and the legs are absent. The family contains about 1,000 species, of which 3 occur in Britain.

175 *Isorhipis melasoides*

Characteristics: L. 9–11 mm. Body cylindrical, head and thorax brownish-black, the elytra red-brown. The tips of the antennae are comb-like.

Distribution: Central and southern Europe, absent from Scandinavia. Not found in Britain.

Habitat and habits: Both adults and larvae can be found under the bark and in the rotting timber of beech. On warm days in June the adults often swarm around the breeding places.

ELATERIDAE

Most members of this family are soberly coloured, but some are iridescent or red. When lying on their back they have the ability to turn themselves over by a spring mechanism, involving a movable joint between the prothorax and mesothorax; this spring produces a click, hence the popular name click beetles. Some species, particularly from South America, are luminescent, and this applies to the eggs, larvae and adults. The larvae are cylindrical and very slender, with short legs. They live in rotting timber or in the ground, and those that live in the ground may cause considerable damage. The family contains about 7,000 species, of which about 65 occur in Britain.

176 *Adelocera murina*

Characteristics: L. 12–17 mm. A broad and very flat species. General coloration black to brownish-black, covered with patches of pale grey and brown scales.

Distribution: Europe, the Caucasus and northern Asia, including southern Scandinavia. Common in Britain.

Habitat and habits: Lives mainly on open, very dry ground, and is often seen on the wing during warm weather in May to July. The larvae live in the soil, and at any rate during their later stages they are predatory.

177 *Corymbites purpureus*

Characteristics: L. 9–14 mm. Thorax with dense reddish hairs, elytra blood-red. Each elytron has two raised longitudinal ridges.

Distribution: Central and southern Europe. Not found in Britain.

Habitat and habits: A spring species, the adults being found on flowering trees and shrubs, and on the young shoots of willow and poplar. The larval development, in the soil, takes several years.

178 *Corymbites pectinicornis*

Characteristics: L. 14–18 mm. Green or copper-coloured with strong iridescence. The long, comb-like antennae of the males are characteristic of members of the genus *Corymbites*. The female's are almost serrated.

Distribution: Northern and central Europe, and northern Asia, including Scandinavia. Distributed locally in Britain.

Habitat and habits: Larvae live in the soil of meadows, usually close

to woodland. The adults can be seen in the same places during June, often on umbellifer flowers.

179 *Selatosomus aeneus*

Characteristics: L. 10–16 mm. Coloration varying, with dull iridescence, from coppery or brassy to green, blue or violet. Upperside almost naked. Legs red.

Distribution: Europe, and northern Asia, including the whole of Scandinavia. Locally distributed in Britain and Ireland.

Habitat and habits: Found in very dry, sunny places, on banks, among roots and under stones, the adults being seen mainly in June–July. The larvae, which live in the soil, take two years to develop. They may cause damage in agricultural land.

180 *Selatosomus cruciatus*

Characteristics: L. 11–14 mm. Body form as in the preceding species. Thorax black with a broad, yellowish stripe on each side. Elytra reddish-yellow with black markings.

Distribution: Europe, extending into southern Scandinavia. Not found in Britain.

Habitat and habits: Adults are active in April–June and can be found, usually singly, in woodland and scrub, among grasses and other plants or under stones. The larvae live in the soil.

181 *Dalopius marginatus*

Characteristics: L. 6–8 mm. A very slender species. General coloration pale or dark brown. Antennae relatively long, with slender joints.

Distribution: Europe and northern Asia, including the whole of Scandinavia. Common in Britain.

Habitat and habits: Found on bushes among low vegetation in woodland, scrub and gardens. The larvae live in woodland soil, where they feed on roots.

182 *Ludius ferrugineus*

Characteristics: L. 17–21 mm. The body is broadest in front, tapering to the rear. Head black, thorax black often partly reddish-yellow, elytra reddish-yellow.

Distribution: Europe, extending northwards to southern Sweden. Recorded as rare in southern and eastern England.

Habitat and habits: Adults remain hidden in hollow trees during the day, but emerge at night to fly around, often being attracted by artificial lights. The larvae live in rotting timber in hollow trees, particularly in oak but also in willow and others. Their development takes several years.

183 *Agriotes lineatus*

Characteristics: L. 7.5–10 mm. Ground coloration brown or yellow-brown, the elytra showing distinct stripes.

Distribution: Europe and northern Asia, extending northwards into

southern Scandinavia. Very common in Britain.

Habitat and habits: Abundant in fields and meadows, where the adults can be seen in May and June. For the larva, see no. 455.

184 *Harminius undulatus*

Characteristics: L. 13–19 mm. A dark species with dark brown elytra, with a distinct pattern of transverse bands of grey hairs.

Distribution: Mountain regions of central Europe, and in central and northern Scandinavia, but not in southern Sweden and Denmark. Found in Scotland, where it is recorded as very rare.

Habitat and habits: A forest species, associated particularly with pine and spruce. The larvae develop in rotting timber, and the adults are seen flying during sunny weather between May and August.

185 *Athous rufus*

Characteristics: L. 20–28 mm. General coloration a uniform rust-red, with yellow hairs.

Distribution: Europe, including some places in southern Scandinavia. Not found in Britain.

Habitat and habits: Primarily large pine forests, where the larvae develop in old, rotting tree stumps. The adults take to the wing during the evening.

186 *Athous villosus*

Characteristics: L. 15–22 mm. Similar to the preceding species, but smaller and darker, brown to

brownish-red, the elytra with two transverse bands of darker hairs.

Distribution: Europe, extending northwards to Denmark and southern Sweden. Locally distributed in Britain.

Habitat and habits: Deciduous woodland with old hollow trees, in which the larvae develop. The adults are active in June–August.

187 *Cardiophorus gramineus*

Characteristics: L. 8–9.5 mm. Thorax red, elytra, legs and antennae black.

Distribution: Central and southern Europe, but absent from Scandinavia, Denmark and Britain.

Habitat and habits: Primarily open deciduous woodland in the lowlands. The larvae are very long and thin and several of the abdominal segments give the appearance of being subdivided. They live under the bark of trees where they feed on the larvae of other beetles.

188 *Hypnoidus pulchellus*

Characteristics: L. 3–6 mm. Ground coloration black, with fine yellow hairs. Elytra often with three reddish markings of varying shape.

Distribution: Europe, including the whole of Scandinavia, and northern Asia. Found in Scotland, but rarely.

Habitat and habits: Occurs on sandy or gravelly ground, such as the shore line of lakes. The adults are active in May–July.

189 *Elater sanguineus*

Characteristics: L. 12–17.5 mm. Head and thorax black, the latter with a distinct central furrow, elytra red.

Distribution: Europe, including southern Scandinavia, and northern Asia. Recorded as very rare in England.

Habitat and habits: Woodland with large, old trees. The larvae develop in rotting timber. The adults can be found in hollow trees, where they overwinter, to emerge in the following spring. During the summer they visit flowers, particularly hawthorn. Larval development takes several years.

190 *Elater sanguinolentus*

Characteristics: L. 9–11 mm. Similar to the preceding species, but smaller and the elytra have an oval black marking straddling the suture.

Distribution: Europe, including southern Scandinavia, and northern Asia. Locally distributed in the southern half of England.

Habitat and habits: Adults are seen in May and June on the flowers of hawthorn and on the leaves of birch and elder. The larvae live in the rotting timber of various deciduous trees.

191 *Denticollis linearis*

Characteristics: L. 9–13 mm. A slender species with protruding eyes. Thorax reddish, with a dark centre. Elytra yellowish-brown.

Distribution: Europe, northern Asia, extending southwards to Asia Minor and Iran. Locally distributed in England.

Habitat and habits: Adults are seen, mainly in May–July, in woodland and scrub. The larvae live in old, rotting tree stumps or in trunks and branches lying on the ground.

LAMPYRIDAE

The members of this family mostly come from the warmer parts of the world. They are noted for their ability to produce luminescence, from some of the abdominal segments. In European species, at any rate, it is the female that produces the light, which may serve to lead the male to her. The males are winged, but the females wingless. The larvae can also produce light, and even the eggs emit light. The adults do not feed, but the larvae are predators, feeding mainly on snails and slugs. The family contains about 1,100 species, of which 2 occur in Britain.

192 *Lampyris noctiluca*
Glow-worm

Characteristics: L. male 11–12 mm, female 16–18 mm. The male is very flat, with parallel sides, and with the thorax completely covering the head. The upperside is dark brown, the centre of the thorax somewhat darker and sometimes with two paler spots. The female (no. 192a), known colloquially as a glow-worm, is brownish-grey, with smaller eyes than the male and somewhat resembles a larva.

Distribution: Europe, including southern Scandinavia, and northern Asia. Locally distributed in Britain.

Habitat and habits: Particularly open grassland and damp mead-

ows, where the males swarm on warm evenings in June and July.

193 *Phausis splendidula*

Characteristics: L. 8–10 mm. Male matt brownish-black with a pair of conspicuous pale spots on the thorax. Female with very short elytra and no flight wings (no. 193a).

Distribution: Europe, but absent from Denmark, Scandinavia and Britain.

Habitat and habits: Adults are seen in damp places during June and July. In many parts of central Europe this species appears to be more common than the preceding one.

DRILIDAE

The members of this small family are similar to the Lampyridae. The males have elytra and live among vegetation. On the other hand, the females, which resemble larvae, often lack elytra and they move about on the ground. The family contains about 80 species, of which several occur in southern Europe, but only 1 in Britain (*Drilus flavescens*).

194 *Drilus concolor*

Characteristics: L. 4–6 mm. A completely black or sometimes reddish-brown species. The antennae of the male are serrated. The female, which resembles the larvae, is yellow-brown with a pair of black spots on each segment.

Distribution: Europe, extending eastwards to the Caucasus and

northwards to Norway, Sweden and Finland. Not found in Britain.

Habitat and habits: Shady areas of grass in woodland. The larvae feed on the snail *Cepaea hortensis* and their development takes two to three years. The best way to obtain this beetle is to collect snail shells; usually 1–2 per cent of these contain larvae of *Drilus*.

CANTHARIDAE

In this relatively large family the elytra are very poorly sclerotized, and sometimes they even show traces of the original wing venation. The adults, which have long, slender legs and antennae, are mostly seen on flowers and other vegetation. The larvae live on the ground, often among moss. Both adults and larvae are predatory. The family contain about 3,500 species, of which 41 occur in Britain.

195 *Cantharis fusca*

Characteristics: L. 11–15 mm. Mainly black, but the head and thorax are reddish-yellow, the latter with a dark marking in the front. Legs black.

Distribution: Europe. Locally distributed in England and Scotland.

Habitat and habits: Adults, which are active in June and July, are frequently seen on flowers and bushes where they hunt other insects and spiders. For the larva, see no. 457.

196 *Cantharis livida*

Characteristics: L. 10–13.5 mm. Reddish-yellow, the underside and legs partly black. Exceptionally there may be a dark spot in the middle of the thorax.

Distribution: Europe and the near East. Common in Britain.

Habitat and habits: As for the preceding species.

197 *Silis ruficollis*

Characteristics: L. 6–7.5 mm. The coloration resembles that of no.

195, but this is a smaller species and it lacks the dark spot on the thorax.

Distribution: Central and northern Europe, extending to 60°N in Sweden, but absent in Norway. Recorded as rare in parts of England and Ireland.

Habitat and habits: Found mainly in grassland where the adults live among herbaceous vegetation.

198 *Rhagonycha fulva*

Characteristics: L. 7–10 mm. Mainly a uniform reddish-yellow, but the tips of the elytra are darker.

Distribution: Europe, eastwards to the Caucasus. Common in Britain and Ireland.

Habitat and habits: Seen in meadows, paths and along the edges of woodland, on flowers of hawthorn, umbellifers and other plants. Both the adults and larvae are predatory.

199 *Malthinus flaveolus*

Characteristics: L. 5–6.5 mm. A slender species with shortened

elytra, which leave the rear of the abdomen uncovered. General coloration yellow, the back of the head black, elytra greyish-yellow with a yellow marking at the tips.

Distribution: Europe and the Caucasus. Common in Britain.

Habitat and habits: Seen during the summer on bushes and grasses along the edges of woodland, in clearings and in near-by meadows.

200 *Malthodes maurus*

Characteristics: L. 3.5-4 mm.

Smaller and darker than the preceding species, which it otherwise resembles in shape.

Distribution: Northern and central Europe, occurring sporadically in parts of Scandinavia. Rare in Britain and Ireland.

Habitat and habits: Best obtained by beating trees and bushes in June and July. Most of the species prefer rather damp, shady places. The males are often much less abundant than the females.

LYCIDAE

This family, which is mainly tropical, contains about 2,800 species of which only 4 occur in Britain. As in the family Cantharidae, the elytra are very soft. These beetles are active by day, and are often seen, for instance, visiting umbelliferous plants during sunny periods. The larvae live under bark and in rotting timber where they feed on other invertebrates.

201 *Dictyopterus aurora*

Characteristics: L. 7-13 mm. Head and thorax with characteristic depressed areas separated by narrow ridges. Upperside scarlet, the depressed areas brownish.

Distribution: Europe and Siberia, including some parts of Scotland, but not recorded elsewhere in Britain.

Habitat and habits: A woodland species found among vegetation and felled conifers. The larvae live beneath the bark of conifers.

tion similar to that of the preceding species, from which it can be distinguished by the snout-like head and the absence of depressions on the head and thorax.

Distribution: Europe, Siberia and the Mediterranean area, but not Britain.

Habitat and habits: Common in many parts of Europe where it can be seen on flowering plants and bushes in the vicinity of deciduous woodland. The larvae live in rotting timber, often several together. The adults are active from May to September.

202 *Lygistopterus sanguineus*

Characteristics: L. 6-12 mm. Colora-

MALACHIDAE

These are mostly very small beetles with a soft integument. They are characterized by having vesicles protruding from the sides of the thorax and abdomen. These structures enable the beetles to increase the size of the body. The adults live among flowers in sunny places. The larvae, which are predatory, live in old trees and among vegetation. The family contains about 1,000 species, of which 14 are found in Britain.

203 *Charopus flavipes*

Characteristics: L. c. 2.5 mm. Coloration greenish-black, antennae and legs partly yellow. Upperside covered with fine hairs. In the male, the tip of each elytron has a small curved projection.

Distribution: Europe, extending northwards to southern Sweden and southern Finland. Not found in Britain.

Habitat and habits: Lives in dry, grassy areas, along the edges of woodland and in similar places. Some years this species is locally very common from May to August.

204 *Malachius aeneus*

Characteristics: L. 6–8 mm. Coloration dark iridescent green or blue. Thorax with a red area at each

front corner. Elytra also partly red.

Distribution: Europe, Siberia and southwards to Iran. Locally distributed in England.

Habitat and habits: Found on flowers in a wide variety of habitats, mainly in June and July.

205 *Anthocomus bipunctatus*

Characteristics: L. c. 3 mm. Head and thorax greenish-black. Elytra red with a triangular black area in front, and a broad, black band towards the rear.

Distribution: Europe, except the most northerly parts, and south-east to the Caucasus. Not found in Britain.

Habitat and habits: Commonly seen in central Europe in fields, parks and gardens, mainly in May.

DASYTIDAE

These are mostly small, poorly sclerotized beetles, which lack the lateral vesicles characteristic of the preceding family. They are found on grasses, bushes and young trees. The predatory larvae live in timber or under bark. The family contains about 1,000

species, mostly occurring in the warmer regions of the world. About 9 species occur in Britain.

206 *Dasytes plumbeus*

Characteristics: L. 3-4.5 mm. A glossy black beetle showing slight iridescence. Legs dark with yellow tibia.

Distribution: Europe, Caucasus, northern Africa. Found locally

in England south of Lincolnshire.

Habitat and habits: Mostly seen during early summer on a variety of plants, and often on hawthorn flowers. The larvae feed on other beetle larvae beneath bark.

CLERIDAE

These are medium-sized beetles, many of which show attractive colours and patterns. The second, third and fourth tarsal joints are heart-shaped, and carry membranous lobes. The larvae, which are often brightly coloured, have a strongly sclerotized thorax and two horned processes at the tip of the abdomen. Most of the larvae are predatory, living under bark and in timber where they hunt the larvae of other, often injurious beetles, or other insects. The family, which is mainly tropical, contains about 3,000 species, of which about 12 occur in Britain.

207 *Denops albofasciata*

Characteristics: L. 4-7 mm. A slender, cylindrical beetle. Head and thorax red. Elytra black with a pale transverse bar. The outer part of each antennae is serrated.

Distribution: Central and southern Europe. Not found in Britain.

Habitat and habits: Usually found, but rather rarely, along the edges of woods with spruce and oak. The larvae live in the tunnels made by the bark beetle *Xylomites retusus*.

has a red thorax. Sometimes the elytra have two whitish markings.

Distribution: Europe and the Caucasus. Found locally in parts of Ireland, and in England south of Rutland.

Habitat and habits: Adults are found on the trunks of various deciduous trees, particularly in places where there is no bark. Both they and the larvae feed on the larvae of other beetles that live in timber.

208 *Tillus elongatus*

Characteristics: L. 7-10 mm. Male completely black, but the female

209 *Opilo domesticus*

Characteristics: L. 7-12 mm. Ground coloration brown. Elytra with a yellow-brown pattern.

Distribution: Southern and central Europe. Not found in Britain, but the related *O. mollis* is recorded as rare in parts of Wales and southern England.

Habitat and habits: Lives in dry timber, particularly from conifers, and is therefore often brought indoors. The larvae feed on the larvae of wood-boring beetles. The adults appear in June–August.

210 *Pseudoclerops mutillarius*

Characteristics: L. 11–15 mm. A powerfully built, mainly black species. The elytra are red at the base, with whitish markings at the rear.

Distribution: Central and southern Europe, but absent from Scandinavia, Denmark and Britain.

Habitat and habits: Lives mainly in oak woods in warm areas, and is commonly seen on newly felled timber. The adults and the larvae prey on the beetle *Bostrichus capucinus* (see no. 230).

211 *Thanasimus formicarius*

Characteristics: L. 7–10 mm. Ground coloration black, with the thorax and the base of the elytra red. The pattern on the elytra is very variable, but there are always two pale transverse bars. Under-side red, legs black.

Distribution: Europe, including Scandinavia, and northern Asia.

Distributed locally in Britain and Ireland.

Habitat and habits: Associated with conifers. The adults are seen, particularly in May, on tree trunks warmed by the sun. The larvae live under the loose bark of conifers. Both the adults and the larvae prey on other beetles, especially bark beetles (Scolytidae)

212 *Trichodes apiarius*

Characteristics: L. 10–16 mm. Head and thorax blue-black. Elytra red-brown with two dark transverse markings and dark tips.

Distribution: Southern and central Europe. Not found in Britain.

Habitat and habits: Adults are seen on flowers where they hunt other insects. The larvae develop in the nests of both social and solitary bees.

213 *Necrobia ruficollis*

Red-breasted Copra Beetle

Characteristics: L. 4–6 mm. General coloration blue-black, the thorax and the bases of the elytra red.

Distribution: Europe, extending northwards into southern Scandinavia, and northern Asia. Locally distributed in Britain and Ireland.

Habitat and habits: Adults are often seen on flowers. The larvae are quite common in tanneries, meat stores, etc., where they feed largely on other invertebrates that attack the stored products.

TROGOSITIDAE

The members of this family vary considerably in form. Some are oblong and cylindrical, others broad and oval. The coloration is usually dark brownish. The oblong, cylindrical larvae have long lateral hairs and their thoracic segments have sclerotized dorsal plates. These larvae live in cereals and other stored products, in rotting timber or in fungi. The family contains about 500 mostly tropical species, of which only 3 have been recorded in Britain.

214 *Tenebroides mauritanicus* **Cadelle Beetle**

Characteristics: L. 6–11 mm. General coloration brownish-black to almost black, the underside, antennae and legs red-brown. The thorax has protruding front corners.

Distribution: A cosmopolitan species, originating probably in Africa. Found in many parts of Britain and Ireland.

Habitat and habits: Adults are found in bakeries, mills and grain stores, where the larvae also live and hunt the larvae of other cereal pests, as well as feeding on the stored products. In warmer parts of the world the larvae live in rotting timber and under bark.

215 *Zimioma grossum*

Characteristics: L. 11–19 mm. A flat, broad, dull brownish-black beetle, the whole of the upperside with dense puncturation.

Distribution: Europe, but not found in Britain.

Habitat and habits: Forests in mountainous regions, where the adults can be found, from March onwards, under the bark of conifers, particularly spruce. The larvae live in rotting timber.

216 *Ostoma ferruginea*

Characteristics: L. 8–10 mm. Similar to the preceding species, but smaller, and the coloration is more red-brown. Each elytron has six ridges, whereas *Zimioma* has only three.

Distribution: Europe and northern Asia. Not found in Britain.

Habitat and habits: Adults are frequently seen flying about during the evening. The larvae live in rotting timber, particularly of conifers with loose bark, and also in fungi growing on trees. They are sometimes found in timber used in houses.

LYMEXYLIDAE

A small family containing long, very slender beetles, which are rather similar to the Cantharidae. The elytra become narrower towards the rear and the tip of the abdomen is visible. The larvae are characterized by the prominent thorax and by the spiny appendage on the last abdominal segment. These beetles are pests of hardwoods. The family contains about 50 species, of which 2 occur in Britain.

217 *Hylecoetus dermestoides*

Characteristics: L. 7–18 mm. A yellow-brown species, the tips of the elytra somewhat darker. In the male each maxillary palp is much enlarged. Both sexes have serrated antennae.

Distribution: Europe and northern Asia. Found locally throughout Britain.

Habitat and habits: Adults are seen around dead or dying trees in May and June. The larvae live in the timber of deciduous trees, sometimes also of conifers. For the larva, see no. 458.

218 *Lymexylon navale*

Characteristics: L. 7–13 mm. A very slender species. Female reddish-yellow with a black head and black tips to the elytra. Male somewhat darker.

Distribution: Southern and central Europe. Found locally in England south of Lancashire.

Habitat and habits: Adults are active from May to August. The larvae bore tunnels in hardwoods, particularly oak, and have been known to cause severe damage to wooden ships.

DERMESTIDAE

These are small, broadly built beetles, often covered with fine hairs and scales which form patterns. The larvae feed on animal remains of various kinds and many cause serious damage. The adults sometimes visit flowers. About 26 species occur in Britain.

219 *Dermestes murinus*

Characteristics: L. 7–9 mm. Upper-side dark, covered with a mixture of dark and blue-grey hairs, giving the whole animal a marbled appearance.

Distribution: Europe and northern Asia. Common in most parts of Britain.

Habitat and habits: Mostly found as a scavenger in dry carrion, sometimes entering buildings.

220 *Dermestes lardarius***Larder Beetle**

Characteristics: L. 7–9 mm. General coloration black. The front half of the elytra is covered with whitish hairs and marked with black spots. Known as the bacon or larder beetle.

Distribution: Europe and northern Asia. Widely distributed in Britain.

Habitat and habits: Frequently occurs in buildings where the larvae feed on dried animal remains and products. In southern Europe it also occurs outdoors, sometimes in the nests of social hymenopterans.

221 *Attagenus pello*

Characteristics: L. 4–5.5 mm. An oval species. Upperside black, with three paler spots on the thorax base, and a similar marking on each elytron.

Distribution: Europe and northern Asia. Widely distributed in Britain.

Habitat and habits: A frequent visitor to houses where the larvae cause serious damage to furs, leatherwork, woollen fabrics and museum collections. Larval development takes up to three years. The adults may be seen on flowers during the summer.

222 *Megatoma undata*

Characteristics: L. 4–6 mm. A more oblong species, with parallel sides. General coloration black to brownish-black, the thorax with three whitish spots and the elytra with two transverse markings broken in the middle.

Distribution: Europe and northern Asia. Locally distributed in southern England.

Habitat and habits: Found in a variety of situations, including nesting boxes, under loose bark, or in the nests of bees and wasps. The adults can be seen on flowers in May and June.

223 *Anthrenus museorum***Museum Beetle**

Characteristics: L. 2–3 mm. Upperside black, covered with dark and pale hairy scales, forming a characteristic pattern.

Distribution: Europe and northern Asia. Locally distributed in England.

Habitat and habits: Adults can be seen in June on flowers of hawthorn, umbellifers and others. They also occur indoors where the larvae may cause very severe damage to collections of insects and plants.

ANOBIIDAE

The members of this family are small to very small cylindrical beetles. The larvae, which are of the scarab type, live in tunnels in timber and may cause very serious damage to furniture and

constructional timber. The family contains about 1,100 species, of which about 28 occur in Britain.

224 *Hedobia imperialis*

Characteristics: L. 3.5–5.5 mm. General coloration brownish-black, the whitish, scale-like hairs forming a striking but variable pattern on the thorax and elytra.

Distribution: Europe. Locally distributed in England and Ireland.

Habitat and habits: Larvae live in and feed on the semi-dry timber of oak, beech and other deciduous trees. The adults can be found on flowers in May and June, and sometimes again in August.

225 *Anobium punctatum*

Common Furniture Beetle

Characteristics: L. 3–4 mm. A small, cylindrical brown or reddish-yellow beetle, the upperside covered with fine, dense, silky hairs.

Distribution: Europe, northern Asia and northern America. Very widespread in Britain.

Habitat and habits: A very common species both indoors and out in the wild. The larvae live in the dry timber of both deciduous and coniferous trees, and cause damage to furniture and building timber. The adults are seen in May and June and in cases of bad infestation

they may then swarm on the window panes.

226 *Stegobium paniceum*

Biscuit or Drugstore Beetle

Characteristics: L. 2–3 mm. A more reddish species than the preceding. Elytra with fine puncturation.

Distribution: A cosmopolitan species, occurring in many parts of Britain.

Habitat and habits: Larvae live in dried plants, dry bread and a variety of domestic stores, often causing considerable damage.

227 *Ptilinus pectinicornis*

Fan-bearing Wood-borer

Characteristics: L. 3–5 mm. General coloration brownish-black, elytra more brownish. Antennae and legs paler. Antennae comb-like in the male, serrated in the female.

Distribution: Europe, extending eastwards to Syria. Locally distributed in Britain and Ireland.

Habitat and habits: Larvae live in the dry timber of deciduous trees, such as beech and willow, and they are sometimes found indoors. The adults are seen mainly in July, often crawling on tree trunks.

PTINIDAE

These are small, brown to blackish insects, known as spider beetles, which often show sexual dimorphism in the shape of the elytra. The larvae, which resemble those of furniture beetles, live in dry timber, under bark, among old leaves, in faeces or in decaying animal remains. The family contains over 500 species, of which 20 occur in Britain.

228 *Niptus hololeucus*

Golden Spider Beetle

Characteristics: L. 4-4.5 mm. General coloration brownish, the whole insect covered with golden hairs. Abdomen short and very convex. Tibia widened distally.

Distribution: Originally an oriental species, but now widespread in Europe, including Britain.

Habitat and habits: Adults occur quite commonly in buildings where they feed on dry animal and vegetable matter, often damaging old textiles and leatherwork in churches and museums, and also stored products. The adults may be seen at any time of the year, and there are at least two generations in the year.

229 *Ptinus fur*

White-marked Spider Beetle

Characteristics: L. 2.8-4.2 mm. Male considerably more slender than female (no. 229a). General coloration pale or dark brown, the elytra with two whitish transverse markings, but coloration and pattern are usually very variable.

Distribution: Europe and northern Asia. Common in Britain.

Habitat and habits: Found both indoors and out in the open, and more or less at any time of the year. The larvae feed on dry organic matter and may cause considerable damage in museums. In the wild they feed on dried bones, or on the remains of insects found under bark.

BOSTRICHIDAE

These are cylindrical beetles with a large and often sculptured thorax which hides the small head. The larvae gnaw tunnels in fallen timber or in diseased trees. They resemble the larvae of furniture beetles, but the head is much reduced and the thoracic

segments are enlarged. The family contains about 600 species of which only 6 occur in Britain.

230 *Bostrichus capucinus*

Characteristics: L. 8–14 mm. Head and thorax black, elytra wine-red.

Distribution: Europe, northern Asia and the Mediterranean area. Recorded as rare in southern England.

Habitat and habits: Larvae live in

various deciduous trees, and their development takes at least two years. They pupate in spring but the adult beetles remain in the timber until June. They can be seen crawling on tree trunks or flying during warm weather.

NITIDULIDAE

This family contains small to very small species, usually with short, stumpy elytra, but otherwise varying considerably in form, structure and biology. The adults are often seen on flowers. The family contains about 2,200 species, of which 92 occur in Britain.

231 *Carpophilus mutilatus*

Characteristics: L. 3–3.5 mm. General coloration dirty brown. Elytra very short and truncated.

Distribution: Introduced into Europe. Very locally distributed in central England.

Habitat and habits: Lives in stores where the larvae feed on dried fruit and similar products.

Scandinavia, and northern Asia. Fairly common in Britain.

Habitat and habits: Adults, which overwinter, are commonly seen and often in large numbers on all kinds of flowers, particularly crucifers. Both adults and larvae may cause damage to crucifer crops, such as swede seedlings.

232 *Meligethes aeneus*

Characteristics: L. 1.5–2.7 mm. General coloration iridescent green, blue or violet, sometimes black and almost without iridescence. A very variable species and extremely difficult to distinguish from the c. 30 other species of *Meligethes* that occur in Britain.

Distribution: Europe, including

233 *Epuraea depressa*

Characteristics: L. 2.5–3.5 mm. A uniform yellow-brown species, belonging to a genus with a large number of extraordinarily similar species.

Distribution: Europe, including Scandinavia, and northern Asia. Common in Britain.

Habitat and habits: Adults are seen mainly from May to September,

often on blossom such as hawthorn, and also on tree trunks exuding sap. The larvae live under bark.

234 *Nitidula bipunctata*

Characteristics: L. 3–5 mm. A black beetle, the elytra with two yellowish-red markings. Legs red-brown. Two other species of the genus occurring in Britain are *N. rufipes* which is completely black, and *N. carnaria* with more yellowish-red markings.

Distribution: Europe, including Scandinavia, and northern Asia. Common in Britain.

Habitat and habits: Adults are seen from April to September. Both adults and larvae live on dry carrion, and in old hides and bones.

235 *Pocadius ferrugineus*

Characteristics: L. 2.8–4.5 mm. A shiny red-brown to brown species, completely covered with yellow

hairs. Elytra with characteristic puncturation arranged in longitudinal rows.

Distribution: Europe, including Scandinavia, and eastwards to the Caucasus. Locally distributed in Britain.

Habitat and habits: Adults can be found during the evening, often in low vegetation. The larvae live in fungi, particularly those in the puffball group. There are possibly two broods in the year.

236 *Glischrochilus quadripunctatus*

Characteristics: L. 3–6.5 mm. A smooth, black, shiny beetle, with two red markings on each elytron.

Distribution: Europe and northern Asia. Locally distributed in Britain.

Habitat and habits: Adults can be seen from March to November. The larvae live under the bark of conifers, sometimes in the tunnels of bark beetles.

RHIZOPHAGIDAE

These beetles are closely related to the members of the preceding family, but differ in small details of the antennal structure. Eleven species of this family occur in Britain.

237 *Rhizophagus parallellocollis*

Characteristics: L. 3–4 mm. A slender, oblong red-brown beetle, the thorax often darker brown with pale sides. The antennae

terminate in an almost spherical club.

Distribution: Europe, including Britain.

Habitat and habits: Adults often

swarm in large numbers on warm afternoons. The larvae occur in a wide variety of situations: under the bark of various trees, in rotting

timber, in compost and fungi, and are sometimes abundant in churchyards.

CUCUJIDAE

This family contains small to medium-sized, flat beetles of the Clavicorn group, but the antennae are not always club-shaped. They usually live under bark, but also in spices and stored products. Most of them appear to be predatory. The family contains about 160 species, of which 23 occur in Britain. Many are cosmopolitan.

238 *Oryzaephilus surinamensis*

Saw-toothed Grain Beetle

Characteristics: L. 2.5–3.5 mm. General coloration brown or blackish-brown. Thorax with six blunt teeth on the sides. Elytra with fine hairs arranged in longitudinal rows.

Distribution: A cosmopolitan species, which is locally distributed in Britain and Ireland.

Habitat and habits: In Europe this species is primarily associated with the activities of man, being found, for instance, in warehouses storing cereals and spices. The larvae as well as the adults feed on the larvae of other insects, and are therefore very beneficial.

239 *Uleiota planata*

Characteristics: L. 4.5–5.5 mm. A flat, oblong, dull black or brown beetle, with characteristically long antennae.

Distribution: Europe and northern Asia. Very rare in Britain.

Habitat and habits: Adults move about very rapidly. In warm areas this species lives out in the open, under the bark of deciduous trees, particularly oak and beech. The larvae are predatory, often living in oak in shipyards.

240 *Cucujus cinnaberinus*

Characteristics: L. 11–15 mm. Upperside scarlet. Mandibles, eyes and legs blackish.

Distribution: Central and northern Europe, extending into southern Scandinavia, but not occurring in Britain.

Habitat and habits: Mountainous country, where it can be found under the bark of both coniferous and deciduous trees.

241 *Laemophloeus bimaclatus*

Characteristics: L. 1.6–2.5 mm. General coloration shiny yellowish-red and almost smooth, the elytra sometimes with an indistinct dark marking.

Distribution: Europe, extending northwards into southern Sweden. Recorded as rare in parts of southern England.

Habitat and habits: A predatory

beetle found under the bark of beech, birch and other trees, where it preys on bark beetles and on other small beetles living in this type of habitat.

CRYPTOPHAGIDAE

These are small to very small beetles, usually with conspicuous hairs. The body is oval or oblong, and the general coloration brown, yellow or black without any real pattern. Most of the species are associated with fungi, particularly with moulds. They also visit flowers, and can often be seen flying about, particularly at sunset. Some 80 species of the family occur in Britain.

242 *Atomaria linearis*

Characteristics: L. 1.2–1.5 mm. Like the other numerous members of this genus, a narrow, parallel-sided beetle with a square thorax.

Distribution: Europe, including parts of southern Scandinavia. Locally distributed in southern England and Ireland.

Habitat and habits: Adults are active from April to October. This species is often found in compost heaps and refuse, and sometimes occurs as a pest of sugar-beet and mangolds.

243 *Cryptophagus scanicus*

Characteristics: L. 1.5–2.8 mm. A member of another genus with numerous very similar species, all characterized by the lateral projections on the thorax. This is one of about 29 species in Britain.

Distribution: Europe, including the whole of Scandinavia. Common in Britain.

Habitat and habits: Found in a variety of different places, such as compost, tree fungi, bees' nests and also indoors in farm buildings. It feeds on moulds.

EROTYLIDAE

Closely related to the preceding family, but usually with a hairless body and an often striking pattern. These beetles are associated with the fungi that grow on trees. Nine species occur in Britain.

244 *Triplax russica*

Characteristics: L. 4.5–6.5 mm. Head and thorax red, elytra black and

hairless. Underside of abdomen red. Legs black.

Distribution: Europe, including

Scandinavia, the Caucasus and northern Africa. Locally distributed in England and Scotland.

Habitat and habits: Lives in bracket fungi (*Polyporus*), often occurring in large numbers.

LATHRIDIIDAE

The members of this family are small oval beetles with distinct ridges on the elytra. They live in a variety of habitats, but are nearly always associated with growths of mould. The family contains about 600 species, of which about 48 occur in Britain.

245 *Lathridius angusticollis*

Characteristics: L. 1.8–2.2 mm. Thorax considerably narrower than the elytra, and with two longitudinal ridges in the middle. Elytra with distinct ridges, and alternating rows of erect hairs.

Distribution: Europe, extending into southern Scandinavia, and northern Asia. Locally distributed in Britain.

Habitat and habits: Mainly found under the mouldy bark of branches and tree trunks, and sometimes also among leaves.

246 *Enicmus minutus*

Characteristics: L. 1.2–2.4 mm. A black or brownish beetle, differing from the preceding species in lacking the longitudinal ridges on the thorax and having conspicuous rows of puncturation on the elytra.

Distribution: Europe, including the whole of Scandinavia, and northern Asia. Very common in Britain.

Habitat and habits: Found both indoors and outdoors, for example in compost, in thatched roofs, on fungi and under leaves and bark. It is sometimes found in ants' nests.

MYCETOPHAGIDAE

Like the preceding family, the Mycetophagidae are associated with fungi, particularly those that grow on trees. Twelve species occur in Britain.

247 *Mycetophagus quadripustulatus*

Characteristics: L. 5–6 mm. An oval and very flat beetle. General coloration blackish, the elytra with two reddish-yellow markings which vary in size.

Distribution: Europe, including

southern Scandinavia, and northern Asia. Common in England.

Habitat and habits: Adults appear from April to September. This species is associated with tree fungi of the genus *Polyporus*, particularly those that grow on oak and ash.

COLYDIIDAE

These are small or very small beetles, which vary considerably as regards shape and habits. Many species live under bark, in the tunnels of wood-boring insects, in rotting timber or in decaying vegetation. A few species are blind and live deep down in the soil. Others probably prey on the larvae of wood-boring insects and bees. The family contains about 1,400 species, of which only 23 occur in Britain.

248 *Bitoma crenata*

Characteristics: L. 2.5–3.5 mm. An elongated, blackish beetle with parallel sides. Thorax with two longitudinal ridges on each side. Elytra with two large red areas, puncturation and longitudinal ridges.

Distribution: Europe, including

southern Scandinavia, and northern Asia. Locally distributed in southern England.

Habitat and habits: Prefers sunny places and is found mainly under beech bark, but also under the bark of other trees. Both the adults and larvae are predators, hunting the larvae of bark beetles.

ENDOMYCHIDAE

These are small, broad to longish oval beetles, usually very convex and brightly coloured. Both adults and larvae live in fungi or among the mycelium (fungal threads) under bark. Some species occur in manure, in vegetation and in stored products. The family, which is primarily tropical, contains about 600 species, of which only 6 occur in Britain.

249 *Endomychus coccineus*

Characteristics: L. 4–6 mm. An oval, very convex, shiny beetle. Thorax red with a black central marking. Elytra also red, each with two black spots of variable shape.

Distribution: Europe, including the whole of Scandinavia. Locally distributed in England and Scotland.

Habitat and habits: Mostly found in

fungi and under the mouldy bark of rotting deciduous tree trunks, particularly beech and birch. There are often several individuals in the same place.

250 *Lycoperdina succincta*

Characteristics: L. 4–4.5 mm. General coloration rust-brown. Thorax characteristically square.

Elytra with a broad or narrow dark band.

Distribution: Europe. Recorded as occurring very rarely in England (Suffolk).

Habitat and habits: Fungi, particularly puffballs of the genus *Lycomperdon*, and generally in shady areas. The adults overwinter in the dried fungus.

COCCINELLIDAE (Ladybirds)

With a few exceptions the members of this family, known popularly as ladybirds, are broad, oval to almost circular beetles, with bright coloration and a conspicuous pattern. Both the adults and the larvae of most species are predators that feed on aphids (greenfly, etc.) and other plant-sucking insects, and are therefore of great economic importance. There are, however, a few species which feed on plants and may cause serious damage. The larvae are soft-skinned, often brightly coloured and with hairs and bristles. The family contains about 3,500 species, of which about 45 occur in Britain.

251 *Epilachna chrysomelina*

Characteristics: L. 7–9 mm. General coloration reddish-yellow. Each elytron with six circular black markings, some of which may fuse.

Distribution: Europe, except in the north. Not found in Britain.

Habitat and habits: Lives in warm places in low-lying country, and feeds on plants of the family Cucurbitaceae (cucumber, etc.).

252 *Subcoccinella vigintiquattuor-punctata*

24-Spot Ladybird

Characteristics: L. 3–4 mm. An almost circular brownish-red to reddish-yellow ladybird, the whole body covered with fine hairs. Each elytron has eight to ten spots

which are often more or less fused.

Distribution: Europe, northern Africa and eastwards to Iran. Locally distributed in Britain and Ireland.

Habitat and habits: Adults appear in May to August. Both the adults and larvae feed on the leaves of various plants, such as orache (*Atriplex*), and may cause damage to crops of beet, clover and lucerne. For the larva, see no. 459.

253 *Coccidula scutellata*

Characteristics: L. 2.5–3 mm. The body is more oblong and oval than is usual among the ladybirds. General coloration reddish-yellow, the elytra black, each with two black spots in the centre, but the

coloration and pattern of the elytra are very variable.

Distribution: Europe, including southern Scandinavia, and northern Asia. Locally distributed in southern England.

Habitat and habits: Found on rushes (*Juncus*) and reeds (*Phragmites*) along the edges of lakes and in marshes, often in large numbers. Both the adults and the larvae feed on aphids. The species overwinters away from water, under moss or bark.

254 *Scymnus frontalis*

Characteristics: L. 2-3 mm. A black species with a red spot on each elytron. Difficult to distinguish from a number of very similar, related species.

Distribution: Europe, including parts of Scandinavia, and extending into northern Asia. Locally distributed in southern England.

Habitat and habits: Found mainly in very dry places with dense vegetation, where it feeds on aphids.

255 *Chilocorus bipustulatus*

Characteristics: L. 3-4 mm. Head reddish-yellow. Elytra black, each with a transverse row of red markings.

Distribution: Europe and northern Asia. Locally distributed in Britain and Ireland.

Habitat and habits: Found on bushes and conifers, where it feeds on aphids and shield bugs.

256 *Exochomus quadripustulatus*

Characteristics: L. 3-5 mm. A shiny, black ladybird, each elytron with a moon-shaped reddish marking in front and a smaller, oval spot just behind the centre. Another species, *E. flavipes*, is completely black with reddish sides to the thorax.

Distribution: Europe and northern Asia. Locally distributed in Britain.

Habitat and habits: Adults are active from as early as March and April, and usually live in sunny places with scattered trees and bushes. Both the adults and larvae feed on aphids and shield bugs.

257 *Hippodamia tredecimpunctata*

Characteristics: L. 4.5-7 mm. A longish oval ladybird. Thorax yellow with a black marking in the centre. Elytra reddish-yellow with a total of thirteen black spots.

Distribution: Europe, extending northwards to the Arctic Circle, the Caucasus and northern Asia. Locally distributed in Britain and Ireland.

Habitat and habits: Adults are active from April to September, and can be found along the edges of lakes, and in marshland. This species preys on aphids.

258 *Coccinella septempunctata*

7-Spot Ladybird

Characteristics: L. 5.5-8 mm. Thorax black with pale yellow at the front corners. Elytra reddish-yellow with seven black spots.

Sometimes there are more spots or none at all.

Distribution: Europe, including Scandinavia. Very common in Britain.

Habitat and habits: One of the commonest ladybirds, found throughout the summer. Both the adults and the larvae prey on aphids.

259 *Adalia bipunctata*

Characteristics: L. 3.5–5.5 mm. The coloration and pattern of this ladybird are very variable. Some specimens are reddish-yellow with two black spots in the centre of the elytra, others are completely black with two reddish spots, and there are all kinds of transitional patterns between these two extremes. The black legs are a constant and characteristic feature.

Distribution: Europe, including Scandinavia, and northern Asia. Very common in Britain and Ireland.

Habitat and habits: Adults are mainly seen from June to October, usually in trees, bushes and other vegetation in very open situations. The adults overwinter, often in houses.

260 *Propylea quatuordecimpunctata*

Characteristics: L. 3.5–4.5 mm. General shape approximately the same as in the preceding species, but with variable colour and pattern. General coloration yellow, the elytra with various blackish markings, some more or less fused.

Distribution: Europe, northwards to the Arctic Circle, the Caucasus, Asia Minor and northern Asia. Occurs in southern England and in Ireland.

Habitat and habits: Found in both open and shady places, from early spring to late autumn, mostly in bushes and trees where it hunts aphids.

261 *Anatis ocellata*

Characteristics: L. 8–9 mm. General coloration reddish-yellow. In the typical form each elytron has ten black spots each with a yellowish-white border. There are also variants that are completely black or completely red.

Distribution: Europe and eastwards to Japan. Fairly common in Britain.

Habitat and habits: Seen mostly in May–June and again in August–September, living particularly under fir trees, where they hunt aphids.

262 *Thea vigintiduopunctata*

22-Spot Ladybird

Characteristics: L. 3–4 mm. A small, almost circular ladybird. General coloration lemon-yellow. Thorax with five black spots and each elytron with eleven black spots.

Distribution: Europe and northern Asia. Common in England and Ireland.

Habitat and habits: Mainly dry habitats, where both adults and larvae feed on the moulds that grow on trees.

BYTURIDAE

This family contains small, cylindrical, brown or grey beetles, covered with silky hairs. Three species occur in Britain.

263 *Byturus ochraceus*

Characteristics: L. 4-4.6 mm. A golden-brown or almost reddish species. Thorax almost twice as broad as long.

Distribution: Europe, including southern Scandinavia, and northern Asia. Locally distributed in England and Ireland.

Habitat and habits: Adults are seen, particularly in May and June, on various flowers, including dandelions and buttercups. The larvae develop in the flowers of *Geum urbanum*.

264 *Byturus tomentosus*

Characteristics: L. 3.2-4 mm. Considerably smaller than the preceding species, and with a narrower thorax. General coloration pale brownish.

Distribution: Europe, including the whole of Scandinavia, and northern Asia. Common in Britain.

Habitat and habits: Adults appear in June and July, when they gnaw the flower buds of raspberry. The eggs are laid in the flowers and the larvae later develop in the fruit. The species also attacks blackberries. For the larva, see no. 461.

TENEBRIONIDAE

This is a very large family of beetles, the majority of which live in the dry regions of the tropics and subtropics. The body size varies considerably, and most are black with marked sculpturing on the thorax and elytra. Many of the species closely resemble beetles of other families. The larvae, known as mealworms, are remarkably uniform and are somewhat similar to those of the Elateridae. The family contains over 11,000 different species, of which only 35 occur in Britain.

265 *Gnaptor spinimanus*

Characteristics: L. 18-24 mm. A large, stoutly built, shiny black species, with powerful legs. The

elytra are almost circular in the female, more oblong in the male.

Distribution: Southern Europe. Not found in Britain.

Habitat and habits: Found in dry, steppe-like habitats. The larvae live in the soil.

266 *Blaps mortisaga*

Characteristics: L. 20–31 mm. Upperside matt black with an oil sheen. Elytra drawn out to a point at the rear.

Distribution: Europe and large areas of Asia. Very rare in Britain.

Habitat and habits: Particularly cellars, stables and outhouses. The adults move about very slowly and are known for their unpleasant smell. Both adults and larvae feed on decaying animal and plant matter.

267 *Pedinus femoralis*

Characteristics: L. 7–9 mm. A short, oval black species, with puncturation arranged in rows on the elytra, which are about the same width as the thorax.

Distribution: Europe, except Scandinavia. Not found in Britain.

Habitat and habits: Particularly warm grassy and steppe country, and often found under stones.

268 *Opatrum sabulosum*

Characteristics: L. 7–10 mm. A broad, oval, completely black species. Thorax with small shiny nodules. Elytra with rows of puncturation alternating with coarse ridges.

Distribution: Europe, including southern Scandinavia, and eastwards into northern Asia. Locally

distributed in southern England and in Ireland.

Habitat and habits: Found in open, sandy or gravelly country, or in pine forests. In some areas this species causes damage in vineyards and other agricultural crops. The adults, which overwinter, are found under stones or among the roots of plants.

269 *Crypticus quisquilius*

Characteristics: L. 4.5–6 mm. An oval, completely black species. Thorax a little broader than the elytra which are slightly pointed and without puncturation.

Distribution: Europe, and extending eastwards to Mongolia. Locally distributed in southern England and in Ireland.

Habitat and habits: Found on sandy heathland, and in areas completely lacking vegetation. The adults live under stones or among roots, and they can be seen running around during sunny periods. The larvae live in the same places.

270 *Boletophagus reticulatus*

Characteristics: L. 6–7 mm. Similar to no. 268, but smaller and with the sides of the body more parallel. Elytra with marked rows of puncturation alternating with fine, raised longitudinal ridges. Thorax with the front corners projecting.

Distribution: Europe, including the whole of Scandinavia, and northern Asia. Not found in Britain.

Habitat and habits: The life cycle is

spent in bracket fungi of the genus *Polyporus*, which grow on the trunks of various deciduous trees.

271 *Diaperis boleti*

Characteristics: L. 6–9 mm. A short, oval, very convex, completely smooth species. General coloration black, the elytra with reddish-yellow transverse bars.

Distribution: Europe, including southern Scandinavia, the Caucasus and eastwards to northern Asia. Rare in England.

Habitat and habits: Found in woodland areas where they live mainly in fungi.

272 *Tribolium confusum*

Flour Beetle

Characteristics: L. c. 3.5 mm. General coloration red-brown and somewhat shiny.

Distribution: This is now a cosmopolitan species, occurring throughout Europe, northwards to about 62°N.

Habitat and habits: In temperate areas found exclusively in mills, bakeries and stores with foodstuffs.

273 *Tenebrio molitor*

Mealworm Beetle

Characteristics: L. 12–18 mm. Body oblong, with almost parallel sides. Antennae very short. General coloration black or blackish-brown.

Distribution: Europe, including central and southern Scandinavia, extending eastwards into northern Asia. Common in Britain.

Habitat and habits: Originally woodland, living under bark and in hollow trees, but now principally known as a pest of flour and other cereal products. For the larva, known as a mealworm, see no. 462.

274 *Cylindronotus laevioctostriatus*

Characteristics: L. 7–11 mm. A short, oval and very convex species. Upperside shiny brownish-black. Antennae and legs red, underside red-brown.

Distribution: Central and western Europe, absent from Scandinavia. Common in Britain.

Habitat and habits: Lives in warm localities under the bark of oak and pine trees, and is sometimes also found under stones.

LAGRIIDAE

These beetles are very similar to the members of the preceding family, from which they can be distinguished, among other things, by the small, rounded thorax. The larvae are broader than those of the Tenebrionidae and have groups of hairs on the sides. This is a mainly tropical family containing about 600 species, of which only 1 occurs in Britain.

275 *Lagria hirta*

Characteristics: L. 7–10 mm. A shiny black beetle, sometimes with the head and thorax more brownish. Upperside with dense hairs, elytra brownish-yellow, legs black.

Distribution: Europe, including southern Scandinavia. Locally

distributed in Britain and Ireland.

Habitat and habits: Lives among vegetation in fairly dry localities, moving about in sunny spots and in shade. The larvae live under fallen leaves and other decaying vegetation.

SERROPALPIDAE

This family contains small to medium-sized beetles with a body form varying from almost oval to one with parallel sides. They mostly live under bark or in rotting timber, often in association with fungi. The larvae, many of which can jump, live in the same places. There are about 450 known species, of which 21 occur in Britain.

276 *Osphya bipunctata*

Characteristics: L. 6–11 mm. Very variable in coloration. Thorax normally black in the male, with red in the centre and at the sides, but in the female it is yellow-brown with two black spots. Elytra black in the male, red-brown in the female. Legs long, the hind legs of the male with much thickened thighs.

Distribution: Europe, from southern England, where it is rare, eastwards to the Caspian Sea.

Habitat and habits: Lives along the edges of woodland and on banks with scrub. The adults are mainly active in June, when they visit various flowers.

277 *Melandrya dubia*

Characteristics: L. 10–15 mm. A uniformly black species. Elytra with distinct rows of puncturation, and with a noticeable constriction in the middle. Thorax narrower than the elytra.

Distribution: Central and northern Europe. Very rare in a few areas of southern England.

Habitat and habits: Lives in and on the trunks, branches and stumps of various deciduous trees. The adults are active in May and June, but they remain hidden during the day.

ALLECULIDAE

The members of this family are close to the Tenebrionidae but differ, among other things, in having pectinate claws on the tarsi. These beetles are very poorly sclerotized, and are yellow, brown or black without any pattern on the elytra. The larvae resemble those of the Tenebrionidae and they live in rotting timber or among the roots of plants. The family contains about 1,100 species, of which 8 occur in Britain.

278 *Gonodera luperus*

Characteristics: L. 6–9 mm. An oblong, very convex species that is usually shiny black and completely without hairs. The upper-side may sometimes be more or less brownish. Antennae long and slender, particularly in the male.

Distribution: Europe. Locally distributed in southern England and Ireland.

Habitat and habits: Lives along the edges of woodland and in open woods, the adults being active in summer when they are seen on flowers, often hawthorn.

279 *Cteniopus sulphureus*

Characteristics: L. 7–9 mm. A mainly sulphur-yellow species, but the head and thorax are darker and sometimes almost black. Antennae very long.

Distribution: Europe, including southern Scandinavia, and eastwards to northern Asia. Locally distributed in southern England.

Habitat and habits: Open, sunny localities with sand and gravel, including dunes. The adults are seen on flowers during June and July.

280 *Omophlus lepturoides*

Characteristics: L. 11–16 mm. Head and thorax black, elytra brownish with fine longitudinal stripes.

Distribution: Southern Europe and the southern areas of central Europe. Not found in Britain.

Habitat and habits: Found particularly in mountainous regions, living among oak, pine and other trees. The larvae live in rotting timber.

MORDELLIDAE

A family of small to very small beetles. The tip of the abdomen is free and uncovered, and often drawn out to a point. The adults

are seen on flowers and on tree trunks. They move very rapidly and readily take to the wing. The larvae live in rotting timber, some also in plant stems where they may cause galls to form. The family contains about 650 species, of which 24 occur in Britain.

281 *Tomoxia biguttata*

Characteristics: L. 5–8.5 mm. Ground coloration matt black. Upperside with brownish hairs, but each elytron has a single spot of silver-grey hairs.

Distribution: Europe, the Caucasus and northern Africa. Rare in southern England.

Habitat and habits: Adults are seen on flowers, or on the trunks and stumps of trees in open, sunny positions. The larvae live in the rotting timber of various deciduous and coniferous trees.

282 *Mordella villosa*

Characteristics: L. 5.5–8.5 mm. Ground coloration black, with pale silvery-white or golden hairs forming a characteristic but very variable pattern.

Distribution: Europe and northern Asia. Very locally distributed in southern England.

Habitat and habits: Adults are seen on flowers along the edges of woodland, mostly between May and August. The larvae develop in the damp, rotting timber of deciduous trees.

RHIPIPHORIDAE

These are mostly narrow beetles with pointed elytra which often do not cover the wings. The legs are long and the antennae often distinctly comb-like. The larvae are parasitic, often with complicated life histories. They parasitize hymenopterans in particular, but also cockroaches and other insects. Over 400 species are known, of which 1 occurs in Britain.

283 *Metoeus paradoxus*

Characteristics: L. 8–15 mm. Coloration very variable. Elytra usually reddish-yellow with a black rear border in the male, often completely black in the female. Thorax with yellowish sides in both sexes.

Distribution: Europe, including southern Scandinavia. Rare in Britain and Ireland.

Habitat and habits: Eggs are laid on old trees. The first stage larva bores into the body of a wasp larva, while the second stage lives as an external parasite on the same host. The adults can sometimes be seen on flowers.

PYROCHROIDAE

This family contains medium-sized to very large beetles with a flat body and elytra that become considerably broader to the rear. The antennae are long and filamentous or comb-like. The larvae are very long and flat, with the penultimate abdominal segment enlarged. These beetles live under bark of dry deciduous timber and they are predatory. About 100 species are known, of which 3 occur in Britain.

284 *Pyrochroa coccinea*

Characteristics: L. 14–18 mm. Head and underside black, the remainder of the body scarlet.

Distribution: Central Europe, northwards to about 62°N in

Scandinavia. Locally distributed in southern England and Wales.

Habitat and habits: Adults are seen on flowers along the edges of woodland during June. For the larva, see no. 463.

MELOIDAE

A family of medium-sized beetles, which have interesting habits during the early stages of the life cycle. For the larvae are parasitic on hymenopterans, particularly bees, locusts and related insects. The family contains about 1,500 species, of which 9 occur in Britain.

285 *Meloe violaceus*

Characteristics: L. 10–32 mm. Upperside iridescent blue or violet, sometimes almost black. Thorax arched with rounded sides. Head and thorax with some puncturation.

Distribution: Europe and northern Asia. Locally distributed in Britain.

Habitat and habits: Lives in open, grassy places, where the adults are seen in May and June creeping over the surface of the ground.

The female digs a pit in the ground, in which she lays up to 1,000 or more eggs. The young, very mobile larva crawls up into a flower, where it attaches itself to a solitary bee that comes to forage. On reaching the bee's subterranean cell it drops off and is sealed into the cell where it then proceeds to eat the bee's egg. After a moult the appearance of the larva changes completely and it now resembles a scarab larva. It then

feeds on the honey and pollen in the bee cell, and pupates in the autumn.

286 *Meloe variegatus*

Characteristics: L. 11–38 mm. Very similar to the preceding species, but the head and thorax have coarser puncturation and the upperside is iridescent green to copper-coloured.

Distribution: Europe. Recorded as very rare in a few places in southern England.

Habitat and habits: Similar to those of the preceding species, the adults usually being seen between April and June. For the larva, see no. 464.

287 *Apalus bimaculatus*

Characteristics: L. 9–11 mm. Head and thorax black, elytra yellow-brown, each with a round, black spot towards the rear. It is also characteristic that the elytra are in contact at the front, but their tips diverge.

Distribution: Europe and Asia Minor. Not found in Britain.

Habitat and habits: Adults are seen mostly in March and April. The larvae are parasitic on solitary bees.

288 *Mylabris polymorpha*

Characteristics: L. 10–15 mm. General coloration black, elytra with four reddish-yellow transverse markings of variable form. Antennae short.

Distribution: Warmer parts of Europe. Not found in Britain.

Habitat and habits: Woodland clearings and warm, open sunny banks, where the adults visit flowers. The larvae develop in the egg cocoons of grasshoppers.

289 *Lytta vesicatoria*

Blister Beetle or Spanish Fly

Characteristics: L. 9–21 mm. Upperside iridescent green, sometimes with a golden sheen. Antennae black. The elytra may have a yellowish spot at the tip.

Distribution: Europe and northern Asia. Rare in southern England and Ireland.

Habitat and habits: Adults have a marked mouse-like smell, which can be detected at some distance. They appear in June and July, sometimes in large numbers, and can be seen sitting on the leaves of ash, willow, privet and other plants. The larvae develop in the nests of solitary bees.

ANTHICIDAE

These are small, very active beetles, some with a superficial resemblance to ants. Both the adults and the larvae live in vegetable matter in damp places in the vicinity of water, but

sometimes in drier localities. Certain species have been observed hanging from the abdomen of beetles of the genus *Meloe*. The family contains about 1,000 species, of which 14 occur in Britain.

290 *Notoxus monoceros*

Characteristics: L. 3.7–5.5 mm. The thorax carries a horn which projects forwards over the head. Coloration brownish-yellow to reddish-yellow, the sides of the thorax darker, and the elytra with a black pattern of varying extent.

Distribution: Europe and northern Asia. Locally distributed in Britain.

Habitat and habits: Lives on sandy or gravelly ground, sometimes along the banks of rivers. The adults visit flowers and are predatory.

291 *Anthicus floralis*

Characteristics: L. 3–3.5 mm. Elytra have a transverse furrow in front of which there is a small shiny area. General coloration brownish-black, the thorax sometimes rather paler brownish-yellow.

Distribution: Europe, including Scandinavia, and eastwards into northern Asia. Common in Britain.

Habitat and habits: In most localities this is an abundant species seen from June to October in and around compost and manure heaps, and mainly in very dry places.

OEDEMERIDAE

The beetles in this family are poorly sclerotized and somewhat resemble members of the Cantharidae and Cerambycidae. The body is usually much elongated, and the elytra have raised longitudinal ridges. The larvae develop in timber or in the stems of large herbaceous plants. The adults can be seen on flowers, where they feed on pollen, and some can also be found under bark. About 600 species are known, of which 7 occur in Britain.

292 *Calopus serraticornis*

Characteristics: L. 18–20 mm. Body very slender, antennae very long and serrated. General coloration brownish, the whole body covered with fine hairs, and the head and thorax with close, coarse puncturation.

Distribution: Europe and northern Asia. Not found in Britain.

Habitat and habits: Woodland, particularly in mountainous regions. The larvae develop in the stumps of various trees, including beech and spruce. The adults are nocturnal, but little is known of their habits.

293 *Chrysanthia nigricornis*

Characteristics: L. 5–8 mm. A shiny,

iridescent green, blue or copper-coloured beetle. Legs mainly reddish-yellow.

Distribution: Europe, including most of Scandinavia, and northern Asia. Not found in Britain.

Habitat and habits: Adults are seen in June to September, very frequently on the flowers of composites. The larvae develop in conifers.

294 *Oedemera podagrariae*

Characteristics: L. 8–13 mm. The genus *Oedemera* is characterized by the pointed elytra, which also diverge. The legs are slender in the female, but in the male the thighs of the back legs are thickened. In the species shown the elytra are yellow-brown, but darker at the tips and along the edges. Head and thorax iridescent green in the male, but thorax yellow in the female.

Distribution: Europe, the Caucasus and Asia Minor. Not found in Britain.

Habitat and habits: Occurs in very dry places, usually close to woodland, where the adults visit flowers; they are also seen on bushes and other vegetation.

295 *Pytho depressus*

Characteristics: L. 7.5–16 mm. Body flat and hairless. Coloration variable, but the elytra iridescent greenish, violet or red-brown with deep longitudinal furrows and broadest towards the rear. This species and certain related forms are by some authorities classified as a separate family, the Pythidae.

Distribution: Central and northern Europe, including Scandinavia, and eastwards to northern Asia. Very local in Scotland.

Habitat and habits: Adults appear quite early in the year, but they are active at night and so are easily overlooked. They live mainly under the bark of trees, particularly pine.

CERAMBYCIDAE (Longhorns)

This is a very large family of mostly oblong beetles, with strong sclerotization, that are popularly known as longhorns. Some show cryptic coloration (camouflage), others are brightly coloured, sometimes resembling other insects, such as wasps. Many species can stridulate. Most species are associated with trees, many being serious pests of timber, but some with herbaceous plants. The adults are frequently seen on flowers. The larvae live under bark, in timber or in plant stems. They are soft, whitish and

either flat (those living under bark) or cylindrical (those living in timber or plant stems). The thoracic segments are much reduced. The family contains over 20,000 species, of which 70 occur in Britain.

296 *Prionus coriarius*

Characteristics: L. 18–45 mm. A robustly built, very shiny, dark chestnut-brown to blackish-brown species. The sides of the thorax have three spiny outgrowths. The antennae are serrated in the male, less markedly so in the female.

Distribution: Europe, the Caucasus, Asia Minor and northern Africa. Recorded as rare in southern England.

Habitat and habits: Adults are seen in July and August sitting on old tree trunks or stumps, often of beech, and sometimes taking to the wing. The larvae live among the roots of deciduous trees, such as oak, ash and beech, sometimes also of conifers such as pine.

297 *Ergates faber*

Characteristics: L. 25–60 mm. General coloration brownish-black. Body very flat.

Distribution: Southern and central Europe, but absent from western Europe. Introduced into Britain from Europe.

Habitat and habits: Primarily old pine forests, where the larvae develop in the old stumps. The adults are active in the evening and at night during August and September.

298 *Rhagium sycophanta*

Characteristics: L. 17–30 mm. General coloration brownish. Elytra with two pale transverse markings. Legs very powerful.

Distribution: Europe, extending eastwards into parts of northern Asia. Not found in Britain.

Habitat and habits: Mainly woodland. The adults are most commonly seen in June when they visit flowers and tree trunks with exuding sap. The larvae live under the bark of oak stumps, their development taking at least two years.

299 *Rhagium mordax*

Characteristics: L. 13–22 mm. Similar to the preceding species, but smaller and more slender. Each elytron with a distinct, naked black marking at the side. Legs slender.

Distribution: Europe, including Scandinavia, and the western parts of northern Asia. Common in Britain.

Habitat and habits: Adults are seen in May and June, particularly on flowers. For the larva, see no. 466.

300 *Rhagium inquisitor*

Characteristics: L. 10–21 mm. General coloration more or less

grey-brown. Elytra with conspicuous, shiny ridges. Antennae short.

Distribution: Europe, northern Asia and Japan. Recorded as rare in Britain and Ireland.

Habitat and habits: Both deciduous and coniferous trees. The larvae live beneath bark, their development taking one to three years. Pupation usually occurs in the autumn in a pupal chamber gnawed between the bark and the wood of the tree.

301 *Rhagium bifasciatum*

Characteristics: L. 12–22 mm. A very slenderly built species. Thorax with a smooth, central stripe. Elytra black, becoming red-brown at the tips and with two yellow markings on each side.

Distribution: Central, northern and eastern Europe. Locally distributed in Britain.

Habitat and habits: Adults are seen mainly in June and July. The larvae are associated with both coniferous and deciduous trees, and in many areas are found in damp, rotting timber of pine and spruce.

302 *Rhamnusium bicolor*

Characteristics: L. 15–23 mm. Thorax with two shiny knobs and large lateral spines. Head, thorax, antennae and legs reddish-yellow. Elytra normally iridescent blue, sometimes reddish-yellow.

Distribution: Southern and central

Europe, and northern Asia. Not found in Britain.

Habitat and habits: Adults are seen during June and July, and the larvae live in a variety of deciduous trees, such as willow, poplar and lime.

303 *Stenocorus cursor*

Characteristics: L. 17–24 mm. Male smaller and black with very narrow elytra and antennae as long as the body. Female (no. 303a) larger and black with two red-brown stripes on the elytra, and antennae shorter than the body.

Distribution: Central and northern Europe, and western Asia. Not found in Britain, but the related *S. meridianus* occurs locally in England only.

Habitat and habits: Adults are active from late May until July and can be seen on flowers, or swarming around and sitting on stumps and dead tree trunks. The larvae live in the damp, rotting timber of pine and spruce, and their development takes several years.

304 *Stenocorus quercus*

Characteristics: L. 12–21 mm. Male black with red-brown markings at the front of the elytra. Female usually a uniform yellow-brown, but this is a variable species.

Distribution: Central and southern Europe, and eastwards to northern Asia. Not found in Britain.

Habitat and habits: Oak woods where the larvae live particularly

in old, damaged oak trunks. The adults are seen on flowers, commonly of hawthorn.

305 *Pachyta quadrimaculata*

Characteristics: L. 11–20 mm. A short, robustly built species. Head and thorax black. Elytra yellow with two sharply defined black markings on each side.

Distribution: Central Europe. Not found in Britain.

Habitat and habits: Found particularly in mountainous regions, where the larvae live in conifers. The adults are seen from May to August on flowers in woodland meadows.

306 *Evodinus clathratus*

Characteristics: L. 10–12 mm. General coloration black, the elytra with a variable pattern of yellowish markings.

Distribution: Central Europe. Not found in Britain.

Habitat and habits: Adults are seen on flowers, leaves and tree trunks from May to August, mostly in mountainous regions. The larvae live in conifers.

307 *Gaurotes virginea*

Characteristics: L. 9–12 mm. Thorax red or black. Elytra black with bluish or greenish iridescence. Abdomen red or reddish-yellow.

Distribution: Central and northern Europe. Not found in Britain.

Habitat and habits: Primarily moun-

tainous regions where the adults are seen on flowers during May, June and July. The larvae mostly live in pine, but sometimes in other trees.

308 *Acmaeops collaris*

Characteristics: L. 6.5–9 mm. Elytra shiny blue-black, with dark erect hairs. Thorax and underside yellow-brown.

Distribution: Europe, the Caucasus and northern Asia. Locally distributed in southern England and in Ireland.

Habitat and habits: Adults are seen from April to July, frequently on flowers. The larvae are found under the loose bark of exposed roots of oak and other deciduous trees. They do not make their own tunnels, but feed off the dry inner side of the bark.

309 *Pidonia lurida*

Characteristics: L. 9–11 mm. Body relatively small. General coloration yellow, reddish-yellow or brownish, abdomen brown. The head and thorax may be completely black, as can the suture and the edges of the elytra.

Distribution: Europe, except the northern regions. Not found in Britain.

Habitat and habits: Mountain forests where the adults are seen throughout the summer, usually on flowers. The larvae live in the timber of conifers.

310 *Cortodera humeralis*

Characteristics: L. 8–11 mm. General coloration brownish-black, elytra yellow-brown, sometimes with two yellow spots at the base.

Distribution: Central Europe. Not found in Britain.

Habitat and habits: Forests in warm areas where the adults visit oak trees in flower, the larvae living in the timber.

311 *Alosterna tabacicolor*

Characteristics: L. 6–8 mm. A very slenderly built species. Head and thorax black, elytra brownish-yellow with a narrow dark border.

Distribution: Western Europe, eastwards to Japan. Locally distributed in Britain and Ireland.

Habitat and habits: Adults are seen in June and July, usually on flowers. The larvae live in a variety of trees, such as oak, hornbeam, hazel, willow, pine and spruce. Their development takes two years.

312 *Leptura livida*

Characteristics: L. 7–9 mm. Elytra yellow to yellow-brown, with long hairs and rounded tips. The remainder of the body is brownish-black.

Distribution: Europe and northern Asia, but absent from Scandinavia. Locally distributed in southern England and in Ireland.

Habitat and habits: Adults are seen in May–August, usually on flowers

along the edges of beech woods and in clearings. The larvae live in both deciduous and coniferous trees.

313 *Leptura rubra*

Characteristics: L. 10–19 mm. In the male the elytra are yellow-brown and become very narrow at the back, and the head and thorax are black. The female (no. 313a) is larger with broader elytra, and these as well as the head and thorax are red-brown.

Distribution: Europe and northern Asia. Found locally in Norfolk.

Habitat and habits: Adults are seen during the summer, either flying or crawling on tree trunks and stumps, more rarely on flowers. The larvae live in fallen pine or spruce, where the outer timber has rotted away. They are sometimes found in fence posts and telephone poles.

314 *Leptura sexguttata*

Characteristics: L. 7–12 mm. A mainly black beetle, each elytron usually with three red-brown spots, which may vary considerably in size.

Distribution: Europe, including southern Scandinavia. Rare in southern England and Ireland.

Habitat and habits: Adults can be found from May to July, mostly on flowers along the edges of woodland. The larvae live in the dry timber of deciduous trees, such as oak and beech.

315 *Leptura sanguinolenta*

Characteristics: L. 9–11 mm. Head, thorax and abdomen black. Elytra yellow in the male with a dark border, blood-red in the female, and with black hairs in both sexes. *Distribution:* Europe, including Scandinavia, and northern Asia. Recorded as rare in England and Scotland.

Habitat and habits: Conifers, the larvae living in pine and spruce. The adults are seen in June and July, usually on flowers.

316 *Judolia cerambyciformis*

Characteristics: L. 7–11 mm. Head and thorax black. Elytra yellow, with a varying number of black markings.

Distribution: Europe and Asia Minor. Very locally distributed in England and Scotland.

Habitat and habits: Adults can be seen from May to August, either flying or on flowers. The larvae live in deciduous trees, such as oak and birch.

317 *Strangalia revestita*

Characteristics: L. 8–15 mm. Head and thorax yellowish-red, elytra blue-black.

Distribution: Southern, western and central Europe, and recorded in Britain.

Habitat and habits: Deciduous woodland, where the larvae live in a variety of trees, including oak, poplar, lime, elm and beech.

318 *Strangalia maculata*

Characteristics: L. 14–20 mm. Head and thorax black. Elytra yellow with a variable black pattern.

Distribution: Europe, extending into southern Scandinavia. Fairly common in many parts of Britain.

Habitat and habits: Adults visit flowers in July and August. The larvae live in stumps or fallen trunks of various deciduous trees, usually in the inner, mouldering part of the timber.

319 *Strangalia bifasciata*

Characteristics: L. 7–10 mm. Head and thorax black. Abdomen reddish. Elytra uniform red-brown in the male, but with a pair of dark transverse bars in the female.

Distribution: Southern and central Europe. Not found in Britain.

Habitat and habits: Adults are seen on flowers, mostly between June and September. The larvae develop in the timber of various deciduous trees.

320 *Necydalis major*

Characteristics: L. 19–32 mm. Head and thorax black. This species is characterized by the very short elytra which only cover one-fifth of the wings and abdomen.

Distribution: Europe and northern Asia. Not found in Britain.

Habitat and habits: Adults are active in June and July, when they can be seen swarming around their host trees. The larvae live in deciduous

trees, including willow, poplar and birch.

321 *Molorchus minor*

Characteristics: L. 6–16 mm. Similar in many ways to the preceding species, but considerably smaller, and the elytra are relatively longer. The thighs are characteristically thickened.

Distribution: Europe, including Scandinavia, and northern Asia. Locally distributed in southern England.

Habitat and habits: Adults are seen particularly in June, on flowers and also on spruce branches. The larvae live in conifers, mainly in dead branches or stumps of spruce, or in fencing posts. Their development takes two years.

322 *Stenopterus rufus*

Characteristics: L. 8–16 mm. A very characteristic species with slightly shortened elytra, which are very narrow, concave laterally and do not cover the sides of the abdomen. General coloration black, the elytra yellow-brown to almost black.

Distribution: Southern and central Europe. Not found in Britain.

Habitat and habits: Adults can be found on flowers from May to August. The larvae live in various deciduous trees, including oak, beech and walnut.

323 *Cerambyx cerdo*

Characteristics: L. 24–53 mm. One of the largest European members

of the family. General coloration uniform brownish-black, without hairs, the tips of the antennae red-brown. Antennae longer than the body in the male, scarcely as long in the female.

Distribution: Southern and central Europe. Recorded as a casual immigrant in Britain.

Habitat and habits: Adults are seen from May to August, flying about in the evening and at night or sitting on oak stumps during the day. The larvae live in oak trees, sometimes in other deciduous trees, and the long tunnels cause much damage. Their development takes three to five years.

324 *Cerambyx scopolii*

Characteristics: L. 17–28 mm. Similar to the preceding species, but much smaller. General coloration black, the thorax characteristically wrinkled, and with lateral spines.

Distribution: Southern and central Europe. Recorded as a casual immigrant in Britain.

Habitat and habits: Adults appear in May and are frequently seen on flowers during the summer. The larvae live in the hardwood of stumps and fallen trunks of deciduous trees, including beech. Their development takes two years.

325 *Aromia moschata*

Characteristics: L. 13–24 mm. General coloration uniformly iridescent green, but sometimes copper-coloured, bluish or almost

black. Thorax with lateral spines.
Distribution: Europe. Locally distributed in Britain and Ireland.

Habitat and habits: Adults are usually active from mid-July to mid-August. They produce a musk-like secretion from glands at the rear of the thorax. The larvae live in the trunks or large branches of trees, particularly of willow.

326 *Purpuricenus kaehleri*

Characteristics: L. 9–20 mm. General coloration black, the elytra with blood-red borders.

Distribution: Southern Europe, extending northwards to the southern parts of central Europe. Absent from northern and western Europe, including Britain.

Habitat and habits: Adults of this warmth-loving species are active from May to July, and are seen on the blossom of the mainly deciduous trees in which the larvae live, commonly species of *Prunus*.

327 *Rosalia alpina*

Characteristics: L. 15–38 mm. Easily recognized by the blue-grey coloration and the matt black markings on the elytra. The pattern of markings is extremely variable and more than 100 colour variants have been described.

Distribution: Found locally in the mountain regions of central Europe, southwards to the Caucasus and Sicily. Not found in Britain.

Habitat and habits: Beech woods, the adults being active from June

to September, although seldom seen. The larvae live in old, diseased beech trees. This species is protected in many areas.

328 *Pyrrhidium sanguineum*

Characteristics: L. 8–12 mm. General coloration brownish-black, but the elytra are yellowish-brown to yellowish-red and the whole of the upperside is covered with dense silky reddish hairs.

Distribution: Europe, extending northwards into southern Scandinavia. Very rare in Britain.

Habitat and habits: Oak woods. The adults are seen as early as April. The larvae live in the timber of oak, but exclusively in sawn-off branches, in diseased parts of the crown or in fencing posts.

329 *Callidium aeneum*

Characteristics: L. 9–15 mm. Thorax with very fine puncturation. Upperside iridescent green or bronze, the elytra brownish at the tips.

Distribution: Northern Europe and northern Asia, but not found in Britain.

Habitat and habits: Pine and spruce. The adults are active from May to July when they can be seen on the tree trunks. The larvae live in the timber of dead conifers.

330 *Callidium violaceum*

Characteristics: L. 11–15 mm. Thorax with coarse puncturation.

Elytra iridescent blue, green or violet with dense puncturation.

Distribution: Europe, including the whole of Scandinavia and eastwards into northern Asia. Locally distributed in Britain and Ireland.

Habitat and habits: Adults are seen from May to August. In the wild the larvae live between the bark and the wood of conifers, but they also occur in newly built houses and sometimes in large numbers in waste timber at sawmills.

331 *Phymatodes testaceus*

Characteristics: L. 6–17 mm, but the size is very variable. General coloration reddish-yellow, black or iridescent, but this too is variable. Thorax with smooth, shiny areas between the scattered and uneven puncturation.

Distribution: Europe, including southern Scandinavia, and southwards to northern Africa. Locally distributed in southern England.

Habitat and habits: Adults swarm at twilight from June to August. The larvae live in dry, felled timber that still has the bark on. They can be found in oak, beech and hornbeam, and in some areas also in conifers. The species may be a pest of timber.

332 *Hylotrupes bajulus*

House Longhorn

Characteristics: L. 7–21 mm. Thorax with dense, very coarse puncturation, two round shiny knobs, and

with pale greyish woolly hairs at the sides. Elytra brownish-black with two transverse bands of pale hairs.

Distribution: Europe. Rare in south-eastern England and parts of Ireland.

Habitat and habits: Originates from the Mediterranean region, and in northern Europe it may attack worked softwoods that have become fairly dry. The adults require a high temperature if they are to become active, so they are mostly seen in June and July. The larvae gnaw long tunnels in the sapwood, and in severe attacks roof timbers may be completely destroyed. An attack may be difficult to detect because the larvae do not eject frass. Larval development takes three to ten years, depending upon the nutritional quality of the timber.

333 *Spondylis buprestoides*

Characteristics: L. 12–24 mm. A cylindrical, rather solidly built beetle with short antennae and long, powerful mandibles. Coloration blackish, and not particularly shiny.

Distribution: Europe and northern Asia. Not found in Britain.

Habitat and habits: Adults are seen from late June until August, either flying or creeping about on tree trunks and stumps. The larvae live mostly in felled, rotting pine trees.

334 *Tetropium castaneum*

Characteristics: L. 9–18 mm. Head and thorax black, the latter very shiny in the centre. Elytra black or brownish, and very matt owing to the dense puncturation.

Distribution: Central and northern Europe, and northern Asia. Not found in Britain.

Habitat and habits: In some years, adults are very commonly seen from late May until early June around the trunks of conifers, in which the larvae live and develop.

335 *Asemum striatum*

Characteristics: L. 8–23 mm. General coloration blackish, with short greyish hairs. Thorax with fine, dense puncturation, elytra with longitudinal stripes and ridges.

Distribution: Europe, including the whole of Scandinavia, and northern Asia. Locally distributed in Scotland.

Habitat and habits: Adults are seen around conifers from late May to late July. The larvae live in very new conifer stumps or in freshly felled trunks, spending the early part of their development under the bark, the latter part in the wood itself.

336 *Clytus arietis*

Characteristics: L. 7–14 mm. General coloration dull black. Elytra with three transverse bright yellow markings.

Distribution: Europe, including

parts of Scandinavia. Common in Britain and Ireland.

Habitat and habits: Adults are seen in June on flowers and wood fagots. They are shy, fast-moving insects, which readily take to the wing and their movements somewhat resemble those of a wasp. They lay eggs in dead hardwoods, such as fencing posts made from deciduous trees.

337 *Chlorophorus varius*

Characteristics: L. 8–14 mm. Body cylindrical, the upperside greenish-yellow. Elytra with black markings varying in size and shape.

Distribution: Europe and northern Asia. Not found in Britain.

Habitat and habits: Adults of this warmth-loving species can be seen on flowers in June and July. The larvae live and develop in a variety of deciduous trees.

338 *Plagionotus arcuatus*

Characteristics: L. 6–20 mm. General coloration blackish with short dark hairs. The yellow pattern on the elytra is somewhat variable.

Distribution: Europe, including southern Scandinavia. Rare in England.

Habitat and habits: Adults are only seen in warm, sunny weather when they run around very actively. The larvae live mostly in oak, but sometimes in other deciduous trees, particularly in fresh stumps and fallen trunks in sunny places.

Their development usually takes two years.

339 *Anaclyptus mysticus*

Characteristics: L. 6–13 mm. General coloration blackish, with a reddish-brown area at the front of the elytra and three paler bands of dense whitish hairs towards the rear.

Distribution: Europe. Locally distributed in southern England.

Habitat and habits: Adults are seen mainly in woodland, and often on flowers such as hawthorn, particularly in June. The larvae live in the dry timber of various deciduous trees, frequently in tall, dry stumps. Their development takes at least two years.

340 *Monochamus sartor*

Characteristics: L. 21–35 mm. General coloration black, the elytra in the male with an indistinct, but in the female well defined, pattern of hairy, whitish spots. *M. sutor* is a slightly smaller species.

Distribution: Central Europe. Occurs very rarely in Britain, as an introduction from the Continent.

Habitat and habits: Adults are active in the forests of central Europe from June to August. The larvae develop in fallen trunks of spruce. This species can cause serious damage to timber structures.

341 *Dorcadion fulvum*

Characteristics: L. 13–16 mm. General coloration black, the

elytra, legs and basal antennal joints red-brown. This species is sometimes completely black.

Distribution: Central, southern and eastern Europe. Not found in Britain.

Habitat and habits: Adults occur, mainly on the ground, in warm steppe country, and are mostly seen from March to June. The larvae live in the roots of various plants.

342 *Dorcadion pedestre*

Characteristics: L. 11–17 mm. A mainly black, shiny species, but with the legs and the basal antennal joints red-brown. Head, thorax and elytra with a very narrow, whitish, longitudinal line.

Distribution: Central, southern and eastern Europe. Not found in Britain.

Habitat and habits: Adults are mainly active from April to June, when they can be seen on warm clay slopes. The larvae live in subterranean root systems, as is characteristic of the genus.

343 *Morimus funereus*

Characteristics: L. 20–38 mm. A robustly built dark species, covered with pale hairs. Each elytron has a pair of dull black markings.

Distribution: Mainly the Mediterranean area, extending northwards in the southern parts of central Europe. Not found in Britain.

Habitat and habits: Adults are seen in May and June on stumps and

tree trunks, particularly of oak and beech, in which the larvae develop.

344 *Lamia textor*

Characteristics: L. 15–28 mm. A stoutly built blackish beetle with very robust legs and antennae. Thorax with a pointed spine on each side. Elytra with small, greyish-yellow hairy markings.

Distribution: Europe, including Scandinavia, and northern Asia. Rare in Britain.

Habitat and habits: Adults are very sluggish and can be found creeping around on dry ground, often among willow scrub, from May to September. The larvae live in the fresh, decaying timber at the base of willows, sometimes also of poplars.

345 *Acanthocinus aedilis*

Characteristics: L. 13–20 mm. A brown beetle, the elytra with two, often indistinct, oblique dark markings and with small, brown dots. The male's antennae are enormously elongated, being about five times the length of the body, the female's only twice as long.

Distribution: Europe, including Scandinavia, and northern Asia. Locally distributed in Scotland and Ireland, and has been recorded in England.

Habitat and habits: Adults are seen, mainly in May and June, on stumps, trunks and firewood. The eggs are laid in dead or fallen pine trees, and the larvae live beneath the bark.

346 *Saperda populnea*

Characteristics: L. 10–15 mm. A blackish beetle, the thorax with dense yellow hairs at the sides and along a central stripe. Each elytron with three to five markings with similar yellowish hairs. The related species, *S. scalaris*, has more yellow in the pattern.

Distribution: Europe, the Caucasus, Asia Minor and northern Asia. Locally distributed in England.

Habitat and habits: Adults are seen in June around trees, particularly aspen, sometimes also other poplar species and willow. The larvae develop in living branches and trunks, up to 2 cm thick, and their attack produces gall-like thickenings of the timber. Larval development takes two years.

347 *Saperda carcharias*

Characteristics: L. 20–30 mm. A black beetle, the whole body covered with dense, yellowish, felty hairs. Elytra with dense puncturation.

Distribution: Europe, the Caucasus and northern Asia. Rare in England and Scotland.

Habitat and habits: Adults are active from July to September, and can be seen either when flying in the twilight or while gnawing leaves. The larvae develop in the living trunks, branches and roots of various poplars. Their development takes two to four years. For the larva, see no. 465.

348 *Leiopus nebulosus*

Characteristics: L. 6–10 mm. A variable species, the upperside with greyish-white and dark brown hairs, the elytra with two dark transverse markings.

Distribution: Europe, including southern Scandinavia. Locally distributed in Britain.

Habitat and habits: Adults can be shaken from branches and foliage, particularly in June and July. The larvae live in deciduous trees, such as oak, beech, apple, walnut and hazel, either in the branches or in thin tree trunks attacked by fungi. Their development takes one or two years.

349 *Agapanthia villosoviridescens*

Characteristics: L. 10–22 mm. General coloration blackish, the elytra with yellowish felty hairs which form numerous small spots.

Distribution: Central Europe, northwards to Denmark and southernmost Sweden. Very rare in southern England.

Habitat and habits: Adults are mainly active in May and June, when they are seen on flowers along the edges of woodland. The larvae live in the stems of various herbaceous plants, such as thistles.

350 *Phytoecia cylindrica*

Characteristics: L. 6–12 mm. General coloration blackish, the midline of the thorax and the scutellum with fine grey hairs.

Distribution: Europe, the Caucasus, Asia Minor and northern Asia. Rare in southern England.

Habitat and habits: Adults are seen from June to August on the leaves and flowers of umbellifers. The larvae live in the stems and among the roots of the same group of plants, and their development takes only one year.

351 *Oberea oculata*

Characteristics: L. 16–20 mm. Thorax orange-red with two black markings, elytra black with dense, greyish hairs.

Distribution: Europe, including southern Scandinavia. Rare in southern and south-eastern England.

Habitat and habits: Adults are mostly seen in July and August. The larvae live in young, healthy shoots of willow.

352 *Tetrops praeusta*

Characteristics: L. 3–5 mm. Head and thorax black, elytra yellow, usually with black at the tips, and covered with dense yellowish-grey hairs. Front legs yellow, the remaining legs dark to almost black.

Distribution: Europe, including most of Scandinavia, and northern Asia. Locally distributed in England.

Habitat and habits: Adults are active in June and July. The larvae live in the dead branches (about 1.5–5 cm in diameter) of various deciduous trees.

CHRYSOMELIDAE

This family of beetles is very closely related to the Cerambycidae, and in fact it is not possible to give a firm distinguishing character. Most of the Chrysomelidae have a broad, oval shape and are often brightly coloured or iridescent. The larvae are very uniform, usually very short, broad and convex. They and the adults are all vegetarian. Many of the species are serious pests. This is a very large family with about 27,000 species, of which about 3,500 species occur in the Palaearctic region (Europe, northern Africa and northern Asia). About 260 species have been recorded in Britain.

353 *Donacia aquatica*

Characteristics: L. 6–10 mm. A slender iridescent green beetle, with a purple or violet stripe along the middle of each elytron.

Distribution: Europe, including Scandinavia, and northern Asia. Locally distributed in Britain and Ireland.

Habitat and habits: Adult beetles are seen mainly from May to August. The larvae live on the underwater parts of aquatic plants, such as bur-reed (*Sparganium simplex*) and aquatic buttercups, and possibly also on sedges (*Carex*). They bore their way into the stems of the plants.

354 *Plateumaris consimilis*

Characteristics: L. 6–8 mm. Upper-side bronze or coppery, often with greenish iridescence, sometimes almost black. Legs red-brown.

Distribution: Europe, northern Asia and Japan. Not found in Britain.

Habitat and habits: Adults are mainly active from April to June. The larvae live on marsh marigold (*Caltha palustris*) and on various sedges (*Carex*).

355 *Liliocercis lili*

Characteristics: L. 6–8 mm. Antennae and legs black. Thorax and elytra red.

Distribution: Europe. Very rare in Britain.

Habitat and habits: Adults are seen from April to August on various lilies (*Lilium*), and quite commonly in gardens, where their gnawing may cause damage.

356 *Crioceris duodecimpunctata*

Characteristics: L. 5–6.5 mm. Coloration very variable. Head uniform reddish, thorax reddish-

yellow and elytra red with six variable, black markings. The related *C. asparagi*, which occurs locally in southern England, is blue-black with a red pattern.

Distribution: Europe northwards to Denmark and southernmost Sweden. Not found in Britain.

Habitat and habits: Adults are seen mainly from June to August. This species and *C. asparagi* live exclusively on asparagus and may cause damage to crops.

357 *Lema melanopa*

Characteristics: L. 4-4.5 mm. Thorax and legs reddish-yellow, head and elytra usually blue, sometimes green or black.

Distribution: Europe, northern Asia and northern Africa. Common in Britain.

Habitat and habits: Found in open places, mainly on grasses, during May and June. They feed on grasses and may cause damage to cereal crops, such as oats.

358 *Orsodacne cerasi*

Characteristics: L. 4.5-8 mm. The coloration of this species varies considerably, ranging from a uniform yellow to almost black. The upperside of the body is almost hairless.

Distribution: Europe, northwards to Scandinavia. Rare in southern England.

Habitat and habits: Active in June on various plants, including flowering fruit trees and hawthorn.

359 *Labidostomis longimana*

Characteristics: L. 3.5-7 mm. Head and thorax iridescent green or bronze. Elytra brownish-yellow, often with a darker marking at the front. Front legs unusually long. This is the smallest of the six species of *Labidostomis* found in the temperate parts of Europe.

Distribution: Europe and northern Asia. Not found in Britain.

Habitat and habits: Both adults and larvae can be found on various leguminous plants, e.g. *Lotus* and *Trifolium*. There are two generations in the year.

360 *Clytra laeviuscula*

Characteristics: L. 7-11 mm. A mainly black species, the elytra reddish-yellow with two pairs of black markings, of which the rear-most are large.

Distribution: Central and southern Europe. Not found in Britain.

Habitat and habits: Adults are seen from May to August, often on willow, sloe, ash and other trees. The larvae live in the nests of ants of the genus *Formica*.

361 *Cryptocephalus sericeus*

Characteristics: L. 5-7 mm. General coloration uniform iridescent green, golden-green, purple or bluish. Body short and cylindrical. About nineteen species of *Cryptocephalus* occur in Britain.

Distribution: Europe, the Caucasus, Asia Minor and northern Asia. Not found in Britain.

Habitat and habits: Adults are seen from May to July in meadows and particularly on yellow umbellifers.

362 *Cryptocephalus bipunctatus*

Characteristics: L. 4–6 mm. Elytra red, each with two black markings, one small one in front, the other much larger and towards the rear. The other parts of the body are black.

Distribution: Europe and northern Asia. Very locally distributed in England.

Habitat and habits: Adults are found from May to July on hazel, birch, willow and oak, sometimes also on flowers.

363 *Cryptocephalus moraei*

Characteristics: L. 3–5 mm. Upper-side black with yellow markings, but as in other species of *Cryptocephalus* the pattern is very variable.

Distribution: Europe and western Siberia. Found locally in Britain.

Habitat and habits: Adults are active from late May to early August in sunny, grassy places, and are seen particularly on plants of St John's wort (*Hypericum*).

364 *Adoxus obscurus*

Characteristics: L. 5–6 mm. A shiny, black beetle, the elytra with distinct puncturation, and sometimes more or less red-brown with whitish or yellowish hairs.

Distribution: Europe, northern Asia and Japan. Not found in Britain.

Habitat and habits: Adults are seen from June to August, often on willow-herb (*Epilobium*), and in southern Europe are sometimes a pest on vines. The larvae live on the roots of the same plants. In some places this species reproduces parthenogenetically.

365 *Chrysochus asclepiadeus*

Characteristics: L. 8–10 mm. An oblong, dark metallic blue species.

Distribution: Southern and central Europe and central Asia. Not found in Britain.

Habitat and habits: Found in warm areas. The larvae live among the roots of the plant *Vincetoxicum officinale*, the adults on the flowers and leaves.

366 *Timarcha tenebricosa*

Bloody-nosed Beetle

Characteristics: L. 12–20 mm. One of the largest European members of the Chrysomelidae. The body is almost hemispherical, and is blackish, sometimes with slight iridescence.

Distribution: Southern and central Europe. Locally common in Britain and Ireland.

Habitat and habits: Members of the genus *Timarcha* are rather sluggish beetles, which mostly move about at night. During the day they hide away under stones and among moss. They feed on bedstraws (*Galium*). They are easily confused with some of the Tenebrionidae (see nos. 265–274).

367 *Chrysolina staphylea*

Characteristics: L. 6–9 mm. A uniformly rust-brown and rather shiny beetle, sometimes with a metallic sheen.

Distribution: Central and northern Europe, and northern Asia. Common in Britain.

Habitat and habits: Found mainly in very damp places, and often on plants of mint, lemon balm and basil. The adults overwinter and in spring they may be found in material washed up along the edges of lakes.

368 *Chrysoloina fastuosa*

Characteristics: L. 5–6 mm. A shiny, iridescent green species, the thorax often bluish towards the rear. Elytra with longitudinal violet stripes along the suture and behind the shoulders. Eyes oval, not kidney-shaped as is normal in this genus.

Distribution: Europe, northern Asia and Japan. Locally distributed in Britain.

Habitat and habits: Found in June and July in labiates, such as white dead-nettle (*Lamium album*), woundwort (*Stachys*) and hemp-nettle (*Galeopsis*). This species sometimes becomes a pest in beet-root crops.

369 *Chrysolina sanguinolenta*

Characteristics: L. 6–9 mm. Upper-side black, but the elytra with a yellowish-red border. Underside blue-black.

Distribution: Europe, extending northwards to about 63°N in Scandinavia. Locally distributed in Scotland and Ireland.

Habitat and habits: Commonly seen from May to October in dry, sandy places with growths of toad-flax (*Linaria*), on which the species lives.

370 *Chrysolina violacea*

Characteristics: L. 6–10 mm. A black or blue-black beetle, easily distinguished by the brownish-yellow tarsal joints.

Distribution: Europe. Rare in southern England.

Habitat and habits: Adults overwinter, and appear again from May to September. This species is found in meadows, particularly on ground ivy (*Nepeta hederacea*) and bedstraw (*Galium*).

371 *Chrysochloa cacaliae*

Characteristics: L. 7.5–11 mm. General coloration varying from green with violet stripes to reddish-violet, blue or almost black. The species of *Chrysochloa* have a longish oval body and live in mountain forests and alpine areas.

Distribution: Mountains of central Europe. Not found in Britain.

Habitat and habits: Adults are sometimes found in large numbers on ragwort (*Senecio*), butterbur (*Petasites*) and other plants. As in the other species of *Chrysochloa* there are numerous geographical subspecies.

372 *Leptinotarsa decemlineata*
Colorado Beetle

Characteristics: L. 8–11 mm. Easily recognized by the pattern of yellow and black stripes.

Distribution: Originally northern America, but introduced first into France, and has subsequently spread to large areas of Europe eastwards to the Soviet Union. Fortunately not yet established in Britain, although it has occurred occasionally.

Habitat and habits: Mainly found in the central and southern parts of Europe. The characteristic larvae (see no. 467) feed on potato plants and they can destroy a crop in a very short time. Any sightings of this dangerous pest should be reported immediately to the police.

373 *Entomoscelis adonidis*

Characteristics: L. 7–10 mm. General coloration usually reddish-yellow, but somewhat variable. Elytra each with a central black stripe, and usually also with a narrow black stripe along the suture.

Distribution: Southern, south-eastern and eastern Europe, eastwards to Iran and northern Asia. Not found in Britain.

Habitat and habits: Both the adults and the larvae live on species of pheasant's eye (*Adonis*) and on various crucifers, so they may cause damage to crops of cabbage and related vegetables. The females lay eggs in the spring and again in

the autumn after a resting period during the summer.

374 *Chrysomela vigintipunctata*

Characteristics: L. 6.5–8.5 mm. Head, thorax and underside shiny black. Elytra yellow, each with ten black markings, and with black along the suture.

Distribution: Central Europe, northern Asia and Japan. Not found in Britain.

Habitat and habits: Seen in warmer areas from April to August, particularly on willow trees in the vicinity of water.

375 *Chrysomela populi*

Characteristics: L. 10–12 mm. Head and thorax iridescent greenish-black. Elytra red with a few darker markings.

Distribution: Europe and northern Asia. Locally distributed in Britain.

Habitat and habits: Seen from May to August on willow. Both the adults and the larvae gnaw the leaves. For the larva, see no. 468.

376 *Phytodecta viminalis*

Characteristics: L. 5.5–7 mm. Thorax and elytra reddish-yellow, the former with a red spot at the base. Elytra with black spots at the tip and five other black spots, which vary considerably in size.

Distribution: Central and northern

Europe. Locally distributed in England.

Habitat and habits: Seen mostly in May and June on species of willow.

377 *Prasocuris phellandrii*

Characteristics: L. 5–6 mm. An iridescent black or greenish-black beetle, the thorax with yellow sides, the elytra each with a yellow central stripe and a yellow border.

Distribution: Europe and northern Asia. Common in Britain.

Habitat and habits: Found in damp places in the vicinity of water, mainly on umbellifers, particularly water dropwort (*Oenanthe phellandrium*). The adults overwinter and can be seen in spring among litter washed up along the edges of lakes. The larvae live at first on the outside of the plants, but later inside the stems.

378 *Galeruca tanaceti*

Characteristics: L. 6–10 mm. A completely black, slightly shiny species with coarse puncturation and indistinct ribs on the elytra. The abdomen of the female in particular is large and not always covered by the elytra.

Distribution: Europe, extending northwards to 68°N. Locally distributed in Britain.

Habitat and habits: Found on a variety of plants, including composites and crucifers that grow in very dry places and along the edges of woods. This species may cause damage to crops.

379 *Lochmaea capreae*

Characteristics: L. 4–6 mm. A uniform brownish-yellow beetle, the head somewhat darker and the elytra with coarse puncturation.

Distribution: Europe and northern Asia, eastwards to Japan. Locally distributed in Britain and Ireland.

Habitat and habits: Seen in spring and autumn, sometimes in large numbers, and particularly on willow, poplar and birch. Both the adults and the larvae eat the leaves.

380 *Galerucella lineola*

Characteristics: L. 4.5–6 mm. A greyish-yellow beetle with dense hairs. Thorax with a small dark central spot. Elytra also somewhat darker.

Distribution: Europe and northern Africa. Locally distributed in Britain.

Habitat and habits: Lives particularly on willow, sometimes also on elder and beech, and may cause damage in willow plantations. There are up to four generations in the year, and the first adults are active early on, when the willow is in flower. The larvae also feed on the leaves of these trees.

381 *Agelastica alni*

Characteristics: L. 6–7 mm. A blue-black to almost violet species, the upperside with fine puncturation, but without hairs. Thorax considerably narrower than the elytra.

Distribution: Europe and northern

Asia. Very rare in southern England.

Habitat and habits: Lives on alder, often in large numbers. The black larvae gnaw the undersides of the leaves, while the adults attack the uppersides. In some cases the trees may be completely defoliated, so that only the leaf ribs remain.

382 *Phyllobrotica quadrimaculata*

Characteristics: L. 5–7 mm. A mainly reddish-yellow beetle, the elytra each with two black spots.

Distribution: Europe and northern Asia. Locally distributed in Britain and Ireland.

Habitat and habits: Seen in June and July on skullcap (*Scutellaria galericulata*) growing in damp places. When conditions are suitable this species often occurs in large numbers.

383 *Luperus flavipes*

Characteristics: L. 3.8–5 mm. Thorax and legs yellow. Elytra black, sometimes with a slight bluish sheen.

Distribution: Europe and northern Asia. Found throughout Britain.

Habitat and habits: Larvae are found, mainly in April–August, on various trees, such as alder, willow and birch.

384 *Crepidodera ferruginea*

Characteristics: L. 2.4–4 mm. A uniform brownish-yellow beetle, the elytra become narrow towards the rear.

Distribution: Europe and northern Asia. Common in Britain and Ireland.

Habitat and habits: Found in May–October, mainly in very damp places in the vicinity of water. This species can be seen on a variety of plants, including composites and legumes, and may cause damage to some crops.

385 *Chaetocnema aridula*

Characteristics: L. 2–2.6 mm. A uniform bronze-coloured species.

Distribution: Europe and northern Asia. Not found in Britain.

Habitat and habits: Common in open dry or damp areas. The larva develops inside the stems of various grasses, and the species may cause damage to hay and other crops.

386 *Haltica oleracea*

Characteristics: L. 3–4 mm. An iridescent blue or green species. The genus *Haltica* contains several species with this type of coloration.

Distribution: Europe. Common in England and Ireland.

Habitat and habits: Seen mainly in very dry, uncultivated areas, often on plants of the evening primrose family (*Oenotheraceae*).

387 *Phyllotreta undulata*

Lesser Striped Flea Beetle

Characteristics: L. 1.8–2.5 mm. This beetle belongs to a group charac-

terized by the yellow stripe on each elytron.

Distribution: Europe, Asia Minor and northern Asia. Common in Britain.

Habitat and habits: Practically speaking all the species of *Phyllotreta* live on crucifers, and they may cause damage to crops of cultivated species, such as cabbage and mustard. The adults overwinter, and are mainly seen in May–June and again in the autumn. The larva of a related species is shown in no. 469.

388 *Aphthona euphorbiae*

Characteristics: L. 1.5–2 mm. A dark iridescent green or blue beetle. More rarely bronze-coloured or almost black.

Distribution: Europe, extending northwards to about 60°N. Locally distributed in southern England and Ireland.

Habitat and habits: Lives on spurge (*Euphorbia*). The adult beetle overwinters and is seen from May to October.

389 *Longitarsus pratensis*

Characteristics: L. 1.4–1.8 mm. The genus *Longitarsus* has a large number of species, of which thirty-seven occur in Britain. *L. pratensis* belongs to a group of uniformly yellow-brown species.

Distribution: Europe, extending northwards to southern Norway and central Sweden. Locally distributed in Britain and Ireland.

Habitat and habits: Found from spring to autumn mainly on species of plantain (*Plantago*).

390 *Psylliodes affinis* **Potato Flea Beetle**

Characteristics: L. 2–2.6 mm. The genus *Psylliodes* belongs to a group characterized by the ten-jointed antennae. Fourteen species occur in Britain. *P. affinis* is reddish-yellow, the elytra with a brownish-black suture.

Distribution: Europe and western Asia. Locally distributed in Britain.

Habitat and habits: Feeds mainly on potato and tomato, and may cause damage to crops. The adult overwinters under leaves and moss.

391 *Hispella atra*

Characteristics: L. 3–4 mm. A dull black species, easily recognizable by the long spines on the thorax and elytra.

Distribution: Europe and Asia Minor. Not found in Britain.

Habitat and habits: Found mostly on warm slopes facing south, and usually active from early spring. The larvae make tunnels in the leaves of various grasses.

392 *Cassida viridis*

Characteristics: L. 7–10 mm. There are about 30 species of the genus *Cassida* in the temperate parts of Europe, of which 12 occur in Britain. Living specimens are

green with a narrow silvery band at the base of the elytra. Dead specimens become yellow-brown.

Distribution: Europe and northern Asia. Locally distributed in Britain.

Habitat and habits: Adults are seen

from June to August, mostly in fairly damp places, on labiates, particularly mints. From the middle of June the larvae can also be found on these plants. The larva of a closely related species is shown in no. 470.

BRUCHIDAE

This family forms a kind of transition between the Chrysomelidae and the weevils or Curculionidae. The head has a short, snout-like prolongation. The elytra have a characteristic mottled pattern of white, yellow, red and brown colours. The eggs are laid in the flowers of various plants, particularly those in the pea family. The young larvae bore into and feed on the seeds, and in most cases they also pupate there. Several species cause serious damage to bean and pea crops. The family contains over 900 species, of which 15 occur in Britain.

393 *Bruchus pisorum*

Characteristics: L. 4-5 mm. Ground coloration dark brownish, the elytra with a paler pattern formed by white hairs, the tip of the abdomen with two large black spots.

Distribution: Europe and northern Asia. Common in Britain.

Habitat and habits: Almost exclusively cultivated peas (*Pisum sativum*). For the larva, see no. 471.

394 *Acanthoscelides obsoletus*

Common Bean Weevil

Characteristics: L. 3.5-4 mm. A

small, oval, pale or dark brown beetle, the elytra with a pale greyish pattern.

Distribution: Originally the area of Iran, whence it has become distributed to large areas of the world with beans (*Phaseolus vulgaris*). It occurs in Britain.

Habitat and habits: Under favourable conditions these beetles may produce up to six generations per year in stores. In some places this species is cultured for testing pesticides.

PLATYSTOMIDAE

This small family stands close to the weevils, but differs in having normal labial palps and a distinct labrum. Most of the species live on dead, rotting branches, some also under bark and in fungi. About 2,400 species are known of which only 10 occur in Britain.

395 *Platystomos albinus*

Characteristics: L. 7–10 mm. The male has very long antennae. The upperside is mostly covered with pale or dark brown hairs, but the tips of the elytra and a spot on each of them have whitish hairs.

Distribution: Europe and western

Siberia. Locally distributed in England.

Habitat and habits: Adults are mostly found on dead stumps and branches of deciduous trees, and mainly from June to September. The larvae live in the timber.

CURCULIONIDAE (Weevils)

This family contains a large number of mainly small to very small beetles. They are characterized by the protruding snout or rostrum, which carries the mouthparts at its tip, by the short, stiff maxillary palps and by the usually elbowed antennae. The majority of the species are covered with fine scales. All the weevils are vegetarian, both as adults and larvae. The latter are limbless grubs. The family contains over 40,000 species, of which more than 500 species have been recorded in Britain.

396 *Rhynchites bacchus*

Characteristics: L. 4.5–6.5 mm. A uniformly fairly dark beetle with golden-red or purplish iridescence. The antennae are inserted at the tip of the rostrum in the male, but at its middle in the female.

Distribution: Warmer parts of Europe and Siberia, northern Africa and eastwards to Japan. Rare in southern England.

Habitat and habits: Occurs particularly on fruit trees, including apple, and also on hawthorn. When

present in large numbers these beetles may cause damage to fruit crops.

397 *Byctiscus betulae*

Characteristics: L. 5.5–9.5 mm. A completely metallic species, showing green, blue or coppery iridescence.

Distribution: Europe and Siberia, including central and southern Scandinavia. Locally distributed in England.

Habitat and habits: Seen in June–September on various deciduous trees, including hazel, birch, alder, lime, beech and willow. This species and also nos. 396, 398 and 399 are known as leaf-rollers, the female laying eggs on a leaf which is then rolled up. In certain areas this species causes damage to vines.

398 *Attelabus nitens*

Characteristics: L. 4–6 mm. Thorax and elytra lacquer-red, the remainder of the body black. Somewhat variable in coloration.

Distribution: Europe, Caucasus, Asia Minor and Siberia. Locally distributed in England and Scotland.

Habitat and habits: Lives on the young shoots of oak in June–July. The larvae develop in leaf rolls and they spend the winter in these after they have fallen to the ground in the autumn.

399 *Apoderus coryli*

Characteristics: L. 6–8 mm. Similar in coloration to the preceding

species, but the elytra are not such an intense red and they have conspicuous rows of dots. The head is narrow at the back, the thorax narrow in front.

Distribution: Europe, Caucasus, Siberia and eastwards to northern China. Locally distributed in England and Scotland.

Habitat and habits: Lives mainly on hazel, but also on other deciduous trees and bushes. The larva lives in a leaf roll and its development takes about two months.

400 *Apion virens*

Characteristics: L. 2.3–3.5 mm. Coloration variable: green, blue, violet to almost black. Over 70 species of *Apion* occur in Britain.

Distribution: Europe and northern Asia, extending northwards in Scandinavia to about 64°N. Common in Britain.

Habitat and habits: Lives in fields and is associated with various clovers, particularly *Trifolium pratense*. The larvae live in the stems and later pupate in the roots. This species sometimes causes damage to clover crops.

401 *Apion apricans*

Characteristics: L. 2.5–3.5 mm. A matt black species. The antennae are reddish at the base, the legs yellow but darker on the thighs and tarsi.

Distribution: Europe and Siberia. Common in Britain.

Habitat and habits: From autumn

to spring lives under dry leaves in sunny locations. From May onwards it can be found on various clover species, where it may cause considerable damage.

402 *Apion frumentarium*

Characteristics: L. 2.5–3.5 mm. Belongs to a group of reddish-yellow *Apion* species. Puncturation coarse on head, fine on the thorax. Also known as *A. haematodes*.

Distribution: Europe, Caucasus, Asia Minor. Found in Britain.

Habitat and habits: Lives on docks (*Rumex*), the larvae and pupal stages being spent in galls on the stalk or midrib of a leaf.

403 *Apion craccae*

Characteristics: L. 2.5–3.2 mm. A matt black species, in which the body is covered with fine, grey hairs. Legs dark, and the basal halves of the antennae yellowish-red.

Distribution: Europe and Siberia. Locally distributed in Britain and Ireland.

Habitat and habits: Lives on various leguminous plants, particularly vetches (*Vicia*) and peas (*Lathyrus*). The adults spend the winter, often in large numbers, under leaves in dry places.

404 *Otiorrhynchus ligustici*

Characteristics: L. 9–12 mm. Ground coloration dark, the upper-side covered with oblong, brownish, iridescent scales. Thorax and elytra with fine granules.

Distribution: Europe, Caucasus, Asia Minor. Very rare in England.

Habitat and habits: Lives in fields and meadows, where it is commonly seen in May–June. Both the adults and the larvae may cause damage to various crops, such as beetroot, clover and lucerne. The larvae feed on the roots and overwinter.

405 *Otiorrhynchus niger*

Characteristics: L. 7–12 mm. A black species with the upper-side covered with fine grey hairs. Legs reddish.

Distribution: Mountain regions of central Europe. Not found in Britain.

Habitat and habits: Primarily conifers, where the species is often common in the period between spring and autumn. The larvae feed on the roots of the young trees.

406 *Phyllobius argentatus*

Characteristics: L. 3.5–6 mm. A bright green species with a metallic sheen produced by dense, fine scales. Antennae and legs yellow.

Distribution: Europe and Siberia, extending northwards in Scandinavia to about 63°N. Common in Britain.

Habitat and habits: Commonly seen in spring on deciduous trees, particularly hazel and beech, where the adult beetles gnaw the young leaves, and the species may

cause damage to fruit trees. The larvae overwinter in the ground.

407 *Sciaphilus asperatus*

Characteristics: L. 5–6 mm. Upper-side brownish-grey with slight iridescence. Elytra with numerous densely packed greyish scales.

Distribution: Europe, extending northwards in Scandinavia to about 64°N. Locally distributed in Britain.

Habitat and habits: Seen in woodland in June–September, on low plants and bushes. The adults overwinter under stones and leaves on the forest floor.

408 *Brachyderes incanus*

Characteristics: L. 7–11 mm. A mainly black species, the upperside covered with scattered, greyish-white, slightly iridescent scales and fine hairs.

Distribution: Europe, extending northwards to central Scandinavia. Not found in Britain.

Habitat and habits: Lives on pine and spruce, where adults feed on the leaves, the larvae on the roots. The species is sometimes a pest in pine forests in Sweden.

409 *Polydrusus mollis*

Characteristics: L. 6–9.5 mm. Basically black, but the whole of the upperside is covered with iridescent, greenish or copper-coloured scales. Legs and antennae red.

Distribution: Europe and Siberia. Rare in Britain.

Habitat and habits: Lives on various deciduous trees, such as beech, birch and willow. The adults appear in April–May. Males are very rare, and to a large extent the species probably reproduces parthenogenetically.

410 *Sitona lineatus*

Characteristics: L. 4–5 mm. Upper-side brownish-yellow without iridescence, the elytra with more or less well defined stripes.

Distribution: Europe and Siberia. Common in Britain.

Habitat and habits: Lives mainly on leguminous plants, particularly clover (*Trifolium*), cultivated pea (*Pisum*) and lucerne (*Medicago sativa*). The adult beetles gnaw the leaves, the larvae live among the root. This species may cause crop losses.

411 *Trachyploeus spinimanus*

Characteristics: L. 2.8–3 mm. A small, broadly built and very convex species. Upperside brownish with uniform greyish-white scales.

Distribution: Europe, extending northwards to Denmark and Sweden. Very local in southern and eastern England.

Habitat and habits: Mainly warm, grassy places, living under stones or among vegetation. The adult beetles are nocturnal and they overwinter.

412 *Tropiphorus carinatus*

Characteristics: L. 5.5–6.5 mm. Ground coloration black, the whole of the upper surface covered with small patches of iridescent scales. Each elytron has four raised ridges, which carry short bristles.

Distribution: Central and northern Europe. Very local in England and Scotland.

Habitat and habits: Lives in very damp places, where it can be found in moss, under stones and leaves. It is mainly seen from April to June.

413 *Chlorophanus viridis*

Characteristics: L. 9–11 mm. The body is covered with green or greenish-blue scales, which become more greenish-yellow on the sides. Elytra with parallel sides, finely striped.

Distribution: Southern and central Europe northwards to Denmark. Not found in Britain.

Habitat and habits: Adults are seen mostly in May–June on willow, nettle and thistles, the larvae living among the roots of the same plants.

414 *Cyphocleonus tigrinus*

Characteristics: L. 7–10 mm. Ground coloration black, the whole of the upperside having a marbled appearance due to patches of pale scales.

Distribution: Europe, except the

more northerly regions. Not found in Britain.

Habitat and habits: Lives in warm, dry places and feeds on worm-wood (*Artemisia*), yarrow (*Achillea*) and other flowering plants. The larvae live among the roots, the adult beetles on the flowers and leaves in May–June.

415 *Lepyrus palustris*

Characteristics: L. 7–11.5 mm. Ground coloration black. Elytra covered with greyish-white and brownish hairs and each with a pale spot in the centre.

Distribution: Southern and central Europe northwards to Denmark. Not found in Britain.

Habitat and habits: Lives mostly on sand dunes, usually on or under creeping willow (*Salix repens*) and is mainly active in May–June.

416 *Lixus paraplecticus*

Characteristics: L. 13–24 mm. This is one of the largest weevils. The species of *Lixus* are characterized by the slender body form and the strikingly pointed elytra. Ground coloration brownish-black, but the whole insect is covered with fine dark yellow scales.

Distribution: Europe and western Asia. Rare in southern and eastern England.

Habitat and habits: Always found in damp places in the vicinity of lakes and rivers. The larvae feed on the stems of various umbelliferous

plants. The adults, which overwinter, are seen in the spring and again in autumn.

417 *Phytonomus posticus*

Characteristics: L. 4.5–5.5 mm. Brownish or greyish, the elytra with an oblong dark band along the suture.

Distribution: Europe and western Asia. Common in Britain.

Habitat and habits: Lives mainly in fields and meadows, feeding on leguminous plants and sometimes causing damage to clover and lucerne. Unlike most other weevils the larvae of this species live on the upper parts of the plants, producing a sticky secretion which helps them to remain attached to the leaves.

418 *Alophos triguttatus*

Characteristics: L. 6–9 mm. Ground coloration brownish-black, each elytron with two greyish markings, a smaller one in front and a larger one behind.

Distribution: Central and western Europe, but not in Denmark or Scandinavia. Locally distributed in Britain.

Habitat and habits: Found mainly under stones or among vegetation in fields and meadows, but sometimes also in woodland. This is a very common species in some parts of central Europe.

419 *Hylobius abietis*

Pine Weevil

Characteristics: L. 10–13 mm.

Ground coloration dark brown, the elytra with fine, yellowish markings which form irregular transverse bars. Legs black.

Distribution: Europe and Scandinavia, including the whole of Scandinavia. Locally distributed in Britain.

Habitat and habits: Pine and spruce trees. The adults cause considerable damage by gnawing the young shoots so that growth ceases. They are active in June–September, during which period the females lay their eggs in the bark of conifer stumps. The larvae live in tunnels in the bark and sapwood. This is one of the most serious insect pests of conifers.

420 *Liparus glabrirostris*

Characteristics: L. 17–21 mm. Similar to the preceding species, but larger, more shiny, and the pattern of spots on the elytra is more scattered.

Distribution: Mountain regions of central Europe. Not found in Britain.

Habitat and habits: Associated with damp places in the vicinity of water, where there are plenty of umbellifers.

421 *Pissodes pini*

Characteristics: L. 7–9 mm. Ground coloration matt brown. Elytra with two transverse bars of yellowish scales, the front one divided into spots. Many of the *Pissodes* species are serious forest pests.

Distribution: Europe and Siberia, including the whole of Scandinavia. Very locally distributed in Britain.

Habitat and habits: Lives on pine and spruce, particularly older trees. The eggs are laid on standing, but diseased, trees or on fallen timber. The larvae live in tunnels under the bark. The adult beetle may live for more than two years and lay eggs more than once.

422 *Magdalis ruficornis*

Characteristics: L. 2–3.5 mm. This is a member of a genus with numerous species that are difficult to distinguish from one another. The small black species in the genus have a very short, straight rostrum and red antennae.

Distribution: Europe and Siberia, extending northwards in Scandinavia to Lapland. Locally distributed in England and Scotland.

Habitat and habits: Lives in May–July on various deciduous trees and bushes, e.g. *Prunus* species, oak, rowan. The adults have been seen to gnaw the leaves and young shoots of apple trees. The larvae live in thin branches.

423 *Cryptorhynchidius lapathi*

Characteristics: L. 5.5–9 mm. General coloration brownish-black. Elytra with a brown and whitish pattern formed by scales, the rear part being particularly pale.

Distribution: Europe, including

Scandinavia. Locally distributed in Britain.

Habitat and habits: Adults are seen in early and late summer, mainly on willow and alder, but also on birch and poplar. The larvae at first live under the bark, later in the wood itself, and they may become a pest.

424 *Ceuthorhynchidius troglodytes*

Characteristics: L. 2.2–3 mm. A brownish species, the upperside with a patchy covering of yellow-brown powder scales.

Distribution: Europe and northern Asia. Common in Britain. *Habitat and habits:* Adults are seen in June–September in meadows, along the edges of woodland and the edges of ditches. The larvae develop in the stalks of ribwort plantain (*Plantago lanceolata*) and related species.

425 *Ceuthorhynchus geographicus*

Characteristics: L. 4–5 mm. General coloration brownish-black. Elytra with white scales which form narrow transverse and longitudinal lines.

Distribution: Europe, the Caucasus, Asia Minor and northern Africa. Locally distributed in England and Scotland.

Habitat and habits: Often occurs in large numbers where viper's bugloss (*Echium vulgare*) is growing. The larvae live in the plant's roots.

426 *Ceuthorhynchus assimilis*

Characteristics: L. 2.2–3 mm. General coloration black, the

elytra with striped puncturation covered with whitish scales.

Distribution: Europe, extending northwards to about 62°N in Scandinavia. Common in Britain.

Habitat and habits: Found on crucifers, and sometimes a pest of cabbage (*Brassica*) and related plants. The adults overwinter. The larvae form galls in the stems.

427 *Baris lepidii*

Characteristics: L. 3.5–4 mm. A longish, oval species, the whole upperside a uniform iridescent blue.

Distribution: Southern and central Europe, extending eastwards into central Asia. Very locally distributed in southern England.

Habitat and habits: Like the preceding species, found on crucifers, the larvae developing in the roots.

428 *Sitophilus granarius*

Characteristics: L. 2.3–3.5 mm. A shiny brown or black beetle known as the grain weevil. The elytra with scattered, short hairs. The very similar rice weevil (*S. oryzae*) has a duller upperside.

Distribution: Cosmopolitan. Common in Britain.

Habitat and habits: A pest which causes an immense amount of damage in grain stores. The female lays an egg in the seeds of wheat, rye, maize and similar crops. The larva feeds on the tissues of the seed. Breeding takes place throughout the year.

429 *Curculio nucum*

Characteristics: L. 6–9 mm. Upperside black, covered with yellow-brown scales. Rostrum very long and narrow, particularly in the female.

Distribution: Europe, Middle East and northern Africa. Locally distributed in England and Scotland.

Habitat and habits: Seen during May and June when the adults visit hawthorn flowers. The species is closely associated with hazel. The female gnaws a hole in the green nut, lays an egg in it and the larva later feeds on the kernel. For the larva, see no. 473.

430 *Anthonomus pomorum*

Apple Blossom Weevil

Characteristics: L. 3.5–4.5 mm. General coloration brownish-black. Elytra with a yellow-brown transverse marking towards the rear and with small whitish spots.

Distribution: Europe and northern Asia. Widespread but local in Britain and Ireland.

Habitat and habits: Adults are seen during the early summer when they lay their eggs in apple and pear blossom, or sometimes hawthorn. The larvae develop in the flowers and may cause damage to the fruit.

431 *Gymnetron villosulum*

Characteristics: L. 2.5–3 mm. General coloration black, the elytra often red, but not along the suture. Legs and antennae partly red.

Distribution: Europe, northwards to Denmark and eastwards to the Caucasus. Locally distributed in Britain and Ireland.

Habitat and habits: Very damp places where the larvae live on species of *Veronica* such as *V. anagallis* and *V. beccabunga*, forming galls in the fruits. The adults overwinter.

432 *Cionus scrophulariae*

Characteristics: L. 4–5 mm. General coloration black, the thorax densely covered with whitish scale-like hairs. On the elytra the spaces between the ridges have black,

velvety spots separated by small white spots. In addition, there is a particularly large black, velvety spot towards the front and also at the back of the suture.

Distribution: Europe, the Caucasus, Asia Minor and eastwards to central Asia. Locally distributed in Britain and Ireland.

Habitat and habits: Adults are seen in June–September. The larvae live on figworts (*Scrophularia*), being attached to the plant by a secretion, which forms a slimy mass round the insect. Pupation also takes place there and the pupae remain on the leaves.

SCOLYTIDAE (Bark Beetles)

This family (the bark beetles) contains a number of small, cylindrical and very compactly built beetles. They are closely related to the weevils, but lack the conspicuous rostrum. The tibia are often characteristically flattened and toothed. Bark beetle larvae develop in trees, in or under the bark or in the wood itself. In some cases larvae, pupae and adults can be found at the same time. A few species are associated with herbaceous plants. In typical cases the female gnaws a tunnel into the tree and then makes a vertical tunnel in which she lays her eggs at intervals. The larvae later gnaw more or less horizontally out from the mother's egg gallery, and this produces a characteristic pattern. Many of these beetles are serious forest pests. The family contains about 500 species, of which 66 occur in Britain.

433 *Scolytus mali*

Characteristics: L. 3–4 mm. Beetles of the genus *Scolytus* differ from the other bark beetles in having a thin

margin to the sides and back of the thorax. Head and thorax black, elytra reddish to brown.

Distribution: Europe, including

southern Scandinavia, and northern Asia. Very locally distributed in southern England.

Habitat and habits: Adults are seen mostly from June to August. This species lives particularly in fruit trees, and also in hawthorn, rowan and elm.

434 *Hylesinus fraxini*
Ash Bark Beetle

Characteristics: L. 2.8–3.2 mm. General coloration black, the elytra with a covering of scales forming an irregular pattern.

Distribution: Europe, including southern Scandinavia. Common in Britain and Ireland.

Habitat and habits: Adults are seen mostly in April–May and again in August–September. This species lives mainly in ash, sometimes also in other deciduous trees. The egg galleries are 5–10 cm long, whereas those of the larvae are 2–5 cm. The newly emerged adult beetles seek fresh, smooth ash trunks, where they gnaw short tunnels in the bark as a source of food. The breeding tunnels are in diseased ash trees or in fallen trunks and branches.

435 *Dendroctonus micans*

Characteristics: L. 7–9 mm. A black to brownish-black beetle, completely covered with dense, erect yellow hairs.

Distribution: Europe, including Scandinavia, and northern Asia. Not found in Britain.

Habitat and habits: Adults start to appear in late May, and breed in spruce, particularly Sitka spruce, and they evidently prefer fairly healthy trees. The eggs are laid in a clump, and the larvae communally excavate the bark outwards from the egg chamber.

436 *Trypodendron lineatum*

Characteristics: L. 3–5 mm. The club of each antenna has both sides rounded. There is a very fine puncturation on the elytra, which lack hairs at the tips.

Distribution: Europe, including Scandinavia, and northern Asia. Very locally distributed in Britain and Ireland.

Habitat and habits: Adults overwinter, and start to become active as early as April. They lay in conifers, particularly spruce, and usually in dead, fallen or diseased trees.

437 *Anisandrus dispar*

Characteristics: L. 2–3 mm. General coloration glossy brownish-black, antennae and legs yellow. This species shows considerable sexual dimorphism, the female (illustrated) being cylindrical, with long erect hairs, the male more oval.

Distribution: Europe, the Caucasus, Asia Minor and northern Asia. Very rare in southern England.

Habitat and habits: Breeds in almost all kinds of deciduous trees, excep-

tionally also in conifers. The female gnaws a tunnel into the tree trunk for a distance of a few centimetres. From this several horizontal galleries are then made, and from each of these a series of short vertical tunnels. The larvae live in the latter and feed exclusively on ambrosia fungi, originally introduced by the female.

438 *Myelophilus piniperda*

Characteristics: L. 3.5–4.8 mm. General coloration sometimes black, sometimes dark brown or red-brown. Antennae and tarsi yellowish-red.

Distribution: Europe, northern Asia and northern America. Locally distributed in Britain.

Habitat and habits: Breeds mainly in pine, the tunnels being excavated in stumps, fallen trunks or diseased trees. The female gnaws a vertical gallery, 8–10 cm long, below the bark and at intervals along this makes small niches, in each of which she lays an egg. As it grows each larvae extends its niche to form a horizontal gallery in which it eventually pupates.

439 *Pityogenes chalcographus*

Characteristics: L. 2–3.2 mm. A brownish-black to almost black species, the elytra with fine

punctuation, disappearing at the back.

Distribution: Europe and northern Asia. Rare in Britain and Ireland. The commoner species in Britain is *P. bidentatus*.

Habitat and habits: Breeds principally in red spruce, but also in other conifers, usually in branches, quite high up. The female's egg galleries radiate in all directions and the larval tunnels branch off from them, so that the whole system is more or less stellate. The adults swarm in May.

440 *Ips typographus*

Characteristics: L. 4.2–6 mm. A shiny, brownish-black or brown beetle, densely covered with hairs. The tip of each elytron has a concave area edged with three projecting teeth.

Distribution: Europe, including most of Scandinavia, and northern Asia. Very rare in England and Scotland.

Habitat and habits: This beetle tunnels in spruce and is a serious pest. The adults become active in May. In this species the male associates with two females, one of which makes a gallery upwards from the entrance hole, the other downwards. From these the larvae gnaw horizontal galleries each about 5 cm long. See also no. 475.

BEETLE LARVAE

441 *Cicindela hybrida*

L. up to 15 mm. This larva lives in a vertical burrow in the ground in a place open to sun; it starts to excavate this as soon as it hatches. The burrow increases in size as the larva grows and when the larva is fully grown the burrow is 20-40 cm deep. The head and first thoracic segment of the larva form a lid to the burrow. When other insects pass by they are seized with the powerful mandibles and drawn down into the burrow where they are eaten. Larval development takes two years. For the adult, see no. 2.

442 *Carabus nemoralis*

L. up to 28 mm. The larvae of *Carabus* species can be found in the same places as the adults, that is, on the ground under stones or bark. They emerge at night and hunt for snails, earthworms and other invertebrates. They spend the day in burrows which they excavate in the ground. For the adult, see no. 13.

443 *Zabrus tenebroides*

L. up to 23 mm. This larva feeds mainly on plants, and when numerous may cause serious damage, particularly in spring when it attacks young winter wheat, chewing the leaves to pieces. It is sometimes also common in grass-

land and meadows, but here the damage is less. It may overwinter as a larva. For the adult, see no. 38.

444 *Dytiscus marginalis*

L. up to 60 mm. This is an impressive larva with a large head and powerful mandibles. The coloration is pale or dark brown, depending upon the light conditions in the environment. It lives in fresh waters with dense vegetation, including gravel pits. It usually stays in quite deep water and is a voracious predator, which even attacks fish fry and tadpoles. The body fragments of the prey are sucked up by the curved mandibles which are hollow at the tips. This larva moves about mainly by swimming, and comes to the surface from time to time in order to breathe. For the adult, see no. 55.

445 *Agabus bipustulatus*

L. up to 14 mm. In contrast to the preceding form, this larva moves about mainly on the bottom, running around rapidly and holding on to objects with its claws. When coming up to the surface it usually does so by crawling up plant stems, but it can remain submerged for a long time. This larva can be found throughout the

year in both running and standing waters. For the adult, see no. 51.

446 *Gyrinus natator*

L. up to 15 mm. This larva has slender walking legs and ten pairs of tracheal gills on the sides of the body. It creeps around on stones along the edges of lakes and among vegetation. It is a predator which feeds particularly on midge larvae. For the adult, see no. 58.

447 *Necrophorus vespillo*

L. up to 30 mm. This larva feeds on the dead bodies of small mammals which the parent beetles (see no. 77) have buried in the ground before egg-laying. Pupa-tion takes place in a smooth-walled cavity in the ground underneath the cadaver.

448 *Aclypea opaca*

L. up to 15 mm. This larva often causes very serious damage to beetroot and sugar-beet crops, particularly during warm dry weather in early summer. It may consume all the leaves of the young plants, which then die. For the adult, see no. 81.

449 *Hydrobius fuscipes*

L. up to 15 mm. The larva of this aquatic beetle (adult not shown) lives in standing fresh waters with rich vegetation. It often lives close to the surface where it hunts *Daphnia* and other small crustaceans.

450 *Sphaeridium scarabaeoides*

L. up to 10 mm. In contrast to most of the other members of the *Hydrophilidae* the larva of this species does not live in the water, but occurs quite commonly in semi-dry cow dung, where it preys on fly larvae. In fact, with its pointed front end and reduced limbs it is not unlike a fly larva, but the well sclerotized head stamps it as a beetle larva. For the adult, see no. 68.

451 *Dorcus parallelipedus*

L. up to 65 mm. The larvae of this species and its relatives are characterized by the curved body and the well-developed legs and antennae. The rear end lacks cerci. In most species there are sound-producing organs on either the mouthparts or the legs; in this species they are on the back legs.

This larva is common in rotting beech stumps. It takes several years to complete its development and a single stump may contain larvae of various ages. For the adult, see no. 101.

452 *Geotrupes stercorarius*

L. up to 50 mm. The adults (no. 110) dig holes in the ground under manure. They fill each hole with manure and lay an egg in it. The larva thus lives in and feeds on the mass of manure.

453 *Melolontha melolontha*

L. up to 50 mm. Many scarab larvae live in the ground where

they feed on the roots of trees and other plants, in some cases causing a considerable amount of damage. The larva of this species takes three years to become fully grown and is very voracious, particularly in its third year. Pupation takes place in the fourth summer and the adult beetle appears five to six weeks later, but remains in the ground until the next spring. For the adult, see no. 117.

454 *Chrysobothris affinis*

L. up to 40 mm. The larvae of buprestid beetles are easily recognized by the much enlarged front end. The form shown here lives in and under the bark of oak, sometimes also of other deciduous trees. These larvae occur only in areas of bark exposed to the sun, and they may cause some damage. For the adult, see no. 170.

455 *Agriotes lineatus*

L. up to 20 mm. The larvae of this and a closely related species are among the worst agricultural pests. They attack spring seed, gnawing the new young shoots before they have burst through the soil surface. They also cause damage in root crops. Their development takes several years, and when fully grown, in July, they pupate in a hole in the ground. The adult beetles (no. 183) overwinter in this hole and emerge in the following May-June.

456 *Lamproyris noctiluca*

L. up to 25 mm. This larva (the glow-worm) can be found in spring among leaves and moss in rather damp places. Like the adult it can produce light, having light organs on the underside of the eighth abdominal segment. The larva preys on snails, injecting them with digestive juices through its hollow mandibles. When these have taken effect the resulting broth is sucked up by the larva. For the adult, see no. 192.

457 *Cantharis fusca*

L. up to 23 mm. Cantharid beetles overwinter in the larval state, usually when the larvae are fully grown. Pupation takes place in April-May and the adults emerge a few weeks later. The larvae live on the ground and are even active in winter. In fact, they have been seen creeping about on snow. They are more or less omnivorous. For the adult, see no. 195.

458 *Hylecoetus dermestoides*

L. up to 25 mm. This larva is easily recognized by the enormously enlarged thorax and the long appendage at the end of the abdomen. It gnaws long tunnels in the diseased or felled trunks of both deciduous and coniferous trees. It feeds on the ambrosia fungi that grow in the tunnels. Development takes two to three years. For the adult, see no. 217.

459 *Subcoccinella vigintiquattuor-*
punctata

L. up to 5 mm. One of the few ladybird larvae that feeds on plants. The adults overwinter and in spring the females lay eggs on clover plants. The larvae subsequently feed on the leaves, sometimes causing damage to clover crops. For the adult, see no. 252.

460 *Coccinella septempunctata*

L. up to 10 mm. The larvae of many ladybird species feed on aphids, just as do the adults. A single larva can consume considerable numbers during the course of its development. In many cases the individual species specialize and feed on particular species of aphid. The pupae remain free on the leaves, attached by the tip of the abdomen. The adult (see no. 258) emerges shortly after pupation, and it overwinters.

461 *Byturus tomentosus*

L. up to 4 mm. The females lay eggs in May in raspberry and blackberry. They hatch into larvae which feed on the fruits. When fully grown the larvae fall to the ground where they pupate. For the adult, see no. 264.

462 *Tenebrio molitor*

L. up to 20 mm. This larva, well known as the mealworm, occurs in stores of flour and other cereal products. In many places these larvae are cultured in order to

produce live food for pets and captive animals. For the adult, see no. 273.

463 *Pyrochroa coccinea*

L. up to 35 mm. This larva is easily recognized by its flattened body. It is found in large numbers under the bark of tree stumps lying on the ground. Larval development normally takes about two years, pupation occurs in May and the adults (see no. 284) emerge in June.

464 *Meloe variegatus*

The newly hatched larvae, which are only a few millimetres long, are very mobile and they find their way from holes underground up into such flowers as dandelions. Here they climb on to visiting, laden insects, such as bees and hoverflies, but only those which reach one of the solitary bees (*Andrena*) will be able to develop further. This they do in the bee's underground nest where they are confined among the food stored by the bee for its offspring. Feeding on this store of nectar and pollen the larvae grow large. At this stage the larva is completely different in appearance from the newly hatched larva (see no. 464a). For the adult, see no. 286.

465 *Saperda carcharias*

L. up to 45 mm. The adult (see no. 347) gnaws a hole in the bark of a poplar and lays an egg in it.

The larva then forms a small hole under the bark and subsequently gnaws long tunnels in the wood itself. Larval development takes two to four years, during which time the tree may suffer from this extensive tunnelling.

466 *Rhagium mordax*

L. up to 35 mm. The larva gnaws tunnels under the bark of various deciduous trees, sometimes also of conifers, but only attacks stumps or fallen trunks. Before pupation the larva makes a chamber (see no. 466a) and the pupa subsequently remains in this for some weeks, before emerging as an adult (see no. 299).

467 *Leptinotarsa decemlineata*

L. up to 15 mm. This is the larva of the Colorado beetle and a very characteristic insect which cannot be confused with any other European beetle larva. It is an extremely dangerous pest of potato crops, and anyone finding either larvae or adults should immediately inform the police. For the adult, see no. 372.

468 *Chrysomela populi*

L. up to 13 mm. This is the larva of a chrysomelid beetle which feeds on the leaves of poplar or, more rarely, of willow. It sometimes causes serious damage by partial or complete defoliation of the tree. For the adult, see no. 375.

469 *Phyllotreta nemorum*

Turnip Flea Beetle

L. up to 3 mm. The larvae of this and other species of *Phyllotreta* (see no. 387) make small tunnels in the leaves of turnip, radish and other cultivated crucifers. They are active in June and July, and when present in large numbers may cause considerable damage.

470 *Cassida rubiginosa*

L. up to 9 mm. This larva is easily recognized by the spiny outgrowths, and by the forked appendage which bends forwards over the upperside of the body. The fork is used to hold faeces and the moulted skins which cover the larva completely and serve to protect it from enemies. The larvae feed on the leaves of the adults' food plants, this species feeding on thistles. Pupation also takes place on the leaves. The adult of a closely related species is shown in no. 392.

471 *Bruchus pisorum*

L. up to 3 mm. This is a pest of green peas. The tiny larva gnaws its way into a young pea, within which the rest of the development and pupation take place. This species is therefore easily distributed with seed. For the adult, see no. 393.

472 *Hylobius abietis*

L. 15–18 mm. The larvae live in the bark and sapwood of conifer

stumps or in diseased trunks. They themselves cause no damage, but the adults (see no. 419) gnaw the new shoots, thus stopping their growth.

473 *Curculio nucum*

L. 8–10 mm. The eggs are laid in young, green hazelnuts, the female having bitten a hole in them. The larvae feed on the nuts when they have grown larger, eventually gnawing their way out and falling to the ground where they pupate. For the adult, see no. 429.

474 *Myelophilus piniperda*

This species lives in pine trees. The

female bores mother galleries which are 8–10 cm long. The larval tunnels are at first parallel, but later diverge irregularly and become very long. For the adult, see no. 438.

475 *Ips typographus*

This is a common bark beetle in spruce. There are usually two females that gnaw galleries, one upwards, the other downwards, from a common chamber. Each female lays eggs in niches gnawed at intervals along her gallery. The larval tunnels are up to 5 cm long and at right angles to the mother gallery. For the adult, see no. 440.

BIBLIOGRAPHY

- Crowson, R. A. *The Natural Classification of the Families of Coleoptera*, London, 1955.
- Fowler, W. W. *The Coleoptera of the British Islands*, Vols I-V, London, 1887-91.
- Joy, Norman H. *A Practical Handbook of British Beetles*, Vols I-II, London, 1932.
- Linssen, E. F. *Beetles of the British Isles*, Vols I-II, London, 1959.

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